DOCUMENT RESUME

ED 309 047 SE 050 696

TITLE	International Consultation Meeting on Developing Nonformal Environmental Education (Cairo, Egypt, September 26-October 1, 1987). Final Report.
INSTITUTION	Ain Shams Univ., Cairo (Egypt). Faculty of Education.
SPONS AGENCY	United Nations Educational, Scientific, and Cultural Organization, Paris (France). Environmental Education Section.
PUB DATE	87
NOTE	85p.
AVAILABLE FROM	Unesco, 7 place de Fontenoy, 75700 Paris, France (price not available).
PUB TYPE	Collected Works - Conference Proceedings (021) -- Reports - Descriptive (141)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	*Environmental Education; Environmental Influences; *Foreign Countries; *International Cooperation; International Educational Exchange; Legislation; *Nonformal Education; Science and Society; *Science Programs; *Training
IDENTIFIERS	*Egypt

ABSTRACT

This report was prepared as a follow-up to the implementation of recommendations of the Tbilisi Intergovernmental Conference on Environmental Education. The objectives of the 1987 meeting were to examine concepts and needs, identify major environmental issues and problems, and establish a process and guidelines for nonformal environmental education. Major sections included are: (1) "Strategies and Guidelines for Developing Nonformal Environmental Education"; (2) "Environmental Issues and Problems" (including population, energy shortage, resource depletion, pollution, sewerage and draining system, deforestation, drinking water, flood and drought, housing, extinction of species, and ecosystem degradation); (3) "Methods and Materials"; (4) "Training of Personnel in Nonformal Environmental Education" (discussing target groups, training strategies, training programs, responsible institutions, duration, and evaluation); (5) "Legislation"; and (6) "Suggested Documents and Activities." The agenda, lists of participants, speeches, presentations, and summaries of eight reports are appended. (YP)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED309047

INTERNATIONAL CONSULTATION MEETING ON DEVELOPING NONFORMAL ENVIRONMENTAL EDUCATION

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
X This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY
Susanne Adlung
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ORGANIZED BY

FACULTY OF EDUCATION AIN SHAMS UNIVERSITY

IN CO-OPERATION WITH

UNESCO-UNEP INTERNATIONAL ENVIRONMENTAL EDUCATION PROGRAMME (IEEP)

26 September - 1 October 1987
Cairo, Egypt

SE 050 496

FINAL REPORT

INTERNATIONAL CONSULTATION MEETING ON DEVELOPING NONFORMAL ENVIRONMENTAL EDUCATION

ORGANIZED BY

FACULTY OF EDUCATION
AIN SHAMS UNIVERSITY

IN CO-OPERATION WITH

UNESCO-UNEP INTERNATIONAL ENVIRONMENTAL EDUCATION PROGRAMME (IEEP)

26 September - 1 October 1987
Cairo, Egypt

FINAL REPORT

TABLE OF CONTENTS

I.	Introduction	1-3
II.	Proceedings	4-8
	1. Opening Session	4-5
	2. Plenary Session	5-6
	3. Closing Session	7
	4. Acknowledgement	7-8
III.	Strategies and Guidelines for Developing Nonformal Environmental Education	9-16
IV.	Environmental Issues and Problems	17-21
V.	Methods and Materials	22-26
VI.	Training of Personnel in Nonformal Environmental Education	27-32
VII.	Legislation	33
VIII.	Suggested Documents and Activities	34
	Conclusion	34-36
Appendix 1 :	Agenda	37
Appendix 2 :	List of Participants	38-40
Appendix 3 :	Opening and Closing Speeches	41-51
Appendix 4 :	Presentation on UNESCO-UNEP International Environmental Education Programme (IEEP)	52-56
Appendix 5-A :	Resumé of Guidelines for the Development of Nonformal Environmental Education (EE-23) by Dr. Abdul Ghafoor Ghaznawi, Unesco, Paris	57-59
Appendix 5-B :	Summary of Denmark's report on the Concept, Importance, Needs and Priorities, and Target groups on Non-formal EE by Mr. Ole Larsen, Denmark	60-62
Appendix 5-C :	Resumé of A Process for Developing Nonformal Environmental Education by Dr. Saber Selim, Egypt	63-64

Appendix 5-D : Resumé of Major Environmental Issues and Problems to be Approved through Nonformal Environmental Education (NEE) by Dr. Danuse Kvasnickova, Czechoslovakia..... 65-68

Appendix 5-E : Resumé of Methods, Materials, Training of Personnel, Evaluation, Legislation, Administration, Financing and Coordination Mechanisms in Nonformal Environmental Education by Dr. Banku B. Ganguly, India..... 69-70

Appendix 5-F : Resumé of Country Report of Egypt by Dr. Ali Labib Ibrahim, Egypt..... 71-73

Appendix 5-G : Resumé of Country Report of Jordan by Mrs. Watfa A. Jabi, Jordan..... 74-76

Appendix 5-H : Resumé of Country Report of Nigeria by Eng. Mustapha Shekoni, Nigeria.... 77-80

I. INTRODUCTION

1. Background and Preparation

The International Consultation Meeting on Developing Nonformal Environmental Education was conceived in the context of UNESCO's Programme and Budget for 1986-87 (23 C/5 paragraph) and as a follow-up to the implementation of recommendations of Tbilisi Intergovernmental Conference on Environmental Education. This has been the first consultation meeting to be organized on nonformal environmental education.

The International Consultation Meeting on Developing Nonformal Environmental Education was organized under contract with UNESCO, by the Faculty of Education of Ain Shams University in cooperation with the UNESCO-UNEP International Environmental Education Programme (IEEP), Division of Science, Technical and Environmental Education.

UNESCO prepared the objectives, agenda, information note, draft invitation letter, working documents and country reports for the meeting. UNESCO identified Member States to be invited to send experienced experts on nonformal environmental education to serve the objectives of the meeting in their personal capacity. UNESCO also provided reference documents to the nominated participants for use in the preparation of their papers and/or country reports. Dr. Abdul Ghafoor Ghaznawi, Programme Specialist in Environmental Education, UNESCO, Paris, coordinated the organization of, provided technical support to the meeting and presented the working document entitled Guidelines for the Development of Nonformal Environmental Education. He also made a presentation on the background and activities of IEEP.

The Faculty of Education of Ain Shams University, Cairo, Egypt, issued invitations to identified UNESCO National Commissions, issued air travel tickets to participants, received participants on arrival at the airport and took them back to the airport at the end of the meeting. Similarly the Faculty of Education made reservations at the Baron Hotel, Heliopolis for participants. The Faculty of Education housed the meeting sessions at its premises, provided staff members to collaborate in the implementation of the meeting, prepared one of the working documents and a country report, provided secretarial support and needed local materials, organized local educational excursions and prepared the draft final report. Professor Ali Labib Ibrahim, Dean, Faculty of Education, Ain Shams University, served as Chairman of the Organizing Committee and Chairman of the Steering Committee of the meeting.

2. Objectives

A. To examine the concept, importance, needs, and target groups for nonformal environmental education;

B. To establish a process for developing nonformal environmental education;

C. To identify major environmental issues and problems to be treated by nonformal environmental education;

D. To establish guidelines for developing methods, materials, training of personnel, evaluation, legislation, administration, financing, and coordination mechanisms for nonformal environmental education;

E. To suggest documents and activities in nonformal environmental education to be undertaken by IEEP;

F. To promote exchange of information and experience in the development of nonformal environmental education.

3. Participants

Member States invited to send participants to the meeting were Brazil, Egypt, India, Czechoslovakia, Denmark, Jordan and Nigeria. Nineteen participants and observers attended the meeting. (See Appendix 2 for list of participants).

4. Date and Venue

The International Consultation Meeting on Developing Nonformal Environmental Education was organized from 26 September to the 1st October, 1987, in the premises of the Faculty of Education of Ain Shams University, Cairo, Egypt.

5. Bureau of the Meeting

Chairman	:	Professor M. Saber Selim, Egypt.
Vice-Chairman	:	Dr. Danuse Kvasnickova, Czechoslovakia.
Rapporteur	:	Eng. Mustapha Shekoni, Nigeria.

6. Steering Committee

Chairman	:	Professor Ali Labib Ibrahim, Egypt
Members	:	Professor M. Saber Selim, Egypt
		Eng. Mustapha Shekoni, Nigeria
		Dr. Adly Kamel Farag, Egypt
		Professor Banku B. Ganguly, India
		Dr. Abdul Ghafoor Ghaznawi, UNESCO, Paris

7. Organizing Committee

Chairman	:	Professor Ali Labib Ibrahim, Dean, Faculty of Education, Ain Shams University.
Members	:	Professor M. Saber Selim, Faculty of Education.
		Professor William Ebeid, Vice-Dean, Faculty of Education.
		Dr. Adly Kamel Farag, Environmental Education Expert C/o. Faculty of Education.

8. UNESCO Secretariat

Dr. Abdul Ghafoor Ghaznawi, Programme Specialist in Environmental Education, Division of Science, Technical and Environmental Education, UNESCO, Paris.

9. Documents Presented

The following documents were presented at the meeting. Resume of these documents are recorded in Appendix 5.

i) UNESCO-UNEP International EE Programme (IEEP), prepared and presented by Dr. Abdul Ghafoor Ghaznawi.

ii) Guidelines for Developing Nonformal EE, prepared by UNESCO and presented by Dr.Abdul Ghafoor Ghaznawi.

iii) Concepts, Importance, Needs and Priorities and Target groups in Nonformal EE, prepared and presented by Mr. Ole Larsen, Denmark.

iv) Process for Developing Nonformal EE, prepared and presented by Professor M. Saber Selim, Egypt.

v) Major Environmental Issues and Problems to be Approached through Nonformal EE, prepared and presented by Dr. Danuse Kvasnickova, Czechoslovakia.

vi) Methods, Materials, Training of Personnel, Evaluation Legislation, Administration, Financing and Coordination in Nonformal EE, prepared and presented by Professor Banku B. Ganguly, India.

vii) Country Report on Nonformal EE in Egypt, prepared and presented by Professor Ali Labib Ibrahim, Egypt.

viii) Country Report on Nonformal EE in Jordan, prepared and presented by Mrs. Watfa Jabi, Jordan.

ix) Country Report on Nonformal EE in Nigeria, prepared and presented by Eng. Mustapha Shekoni, Nigeria.

II. PROCEEDINGS

1. Opening Session

In the presence of His Excellency Professor Fathi Sorour, Minister of Education of Egypt and Professor Fawzy El Sha'arawi, Vice-President of Ain Shams University, the opening session was chaired by Professor Ali Labib Ibrahim, Dean, Faculty of Education of Ain Shams University. The opening session was attended by participants, observers, deans and professors of certain Faculties of Ain Shams University, Director of the Office of the Environment, Officials of Egyptian National Commission for UNESCO, Representatives of National Institute of Planning, and Dr. Kamal Saad, UNESCO Representative in Egypt.

Professor Ali Labib Ibrahim, on behalf of the Organizing Committee, extended a warm welcome to the audience and wished the overseas particiipants a pleasant and memorable stay in Egypt. He thanked UNESCO for sponsoring this international gathering, providing the working document and sending Dr. Abdul Ghafoor Ghaznawi to serve as a resource person. He further extended his thanks to the Egyptian National Commission, to UNESCO Office in Cairo, to the members of the Organizing Committee and to the participants for their collaboration and cooperation in the preparation of the meeting. Professor Ali Labib Ibrahim emphasized that nonformal environmental education should be the means to reach the present generation, those who are beyond or outside the influence of the education system, those whose patterns of life and work affect the environment now, those whose decisions and actions in public life will affect the environment which the rising generation will inherit. (For full text see Appendix 3A).

Professor Fawzy El Sha'arawi, Vice-President of Ain Shams University welcomed the audience and extended a special welcome to the international visitors and wished them an enjoyable stay in Egypt. He added that you have come together to consider approaches to environmental education, and this must be a matter of paramount concern, since the world in which we live is our greatest heritage, and the way one group of individuals treats it will affect the fortunes of us all... and Egypt is an appropriate place for such a gathering, for we face here a broad spectrum of environmental problems, and have much to learn from your deliberations. He appreciated the concern of the meeting with nonformal environmental education and the need to reach out beyond the education system to the nation at large and emphasized further that one of the first steps towards environmental education must surely be to educate the educators, and initiate a "top-down" process in the education system. (For full text see Appendix 3B).

Dr. Abdul Ghafoor Ghaznawi, Programme Specialist in Environmental Education, UNESCO, Paris, welcomed the audience on behalf of UNESCO and elaborated that the main objective of the meeting was to have a brainstorm by high level experts from

different parts of the world on the different aspects of developing nonformal environmental education. He pointed out that input to the meeting consisted of papers on different dimensions of nonformal environmental education prepared by UNESCO and participants from Czechoslovakia, Denmark, Egypt, India and country reports reflecting national experiences from Egypt, Jordan and Nigeria. The immediate output of the meeting was considered its final report reflecting deliberations of the meeting in the form of strategies and guidelines to facilitate the development of nonformal environmental education by interested professionals and educational institutions in the Member States. Dr. Abdul Ghafoor Ghaznawi, on behalf of UNESCO, expressed his thanks and gratitude to the Government of Egypt for facilitating the organization of the meeting in Egypt, to the Egyptian National Commission for UNESCO for signing the contract of the meeting and to the President of Ain Shams University for having the Faculty of Education to organize the meeting. He further thanked Dr. Ali Labib Ibrahim, Dean, Faculty of Education and his Organizing Committee, for their hard work in the preparation and organization of the meeting. Thanks were expressed to Member States and their respective participants for accepting the invitation, making preparation and attending the meeting. Dr. Abdul Ghafoor Ghaznawi was thankful to Dr. Kamal Saad of UNESCO Office in Cairo for collaborating in the preparation of the meeting. He expressed his gratitude to H.E. Professor Fathi Sorour, Minister of Education, for his kind presence to open the meeting. (For full text see Appendix 3C).

His Excellency Professor Fathi Sorour appreciated UNESCO's initiatives for the organization of the International Consultation Meeting in Egypt. He added that the Government of Egypt was closely collaborating with the activities of UNESCO in the domains of education, science and culture. His Excellency Dr. Fathi Sorour said that Ministries of Education in general focus on formal education, but it is high time to concentrate on nonformal education where its target groups are vast and varied and found in different walks of life. He added that nonformal environmental education deserves much attention as it serves the vast target groups referred to for improving their environment which could lead to a better quality of life. His Excellency Dr. Fathi Sorour declared the meeting open and wished the participants success in their deliberations.

2. Plenary Sessions

A) Various technical papers were presented during the plenary sessions and the issues raised in the papers were extensively discussed by the participants. The participants from Jordan, Nigeria and Egypt presented their country reports respectively on 26 September 1987. The following areas were covered in the country reports.

i) Major environmental problems of the countries, their main causes and measures taken for their solution and prevention.

ii) Current formal environmental education programmes, objective approaches to implementation, results obtained and problems encountered.

iii) Current nonformal environmental education high-lighting the following components:

- Major environmental issues and problems approached.
- Methods, materials and evaluation techniques utilized.
- Training of personnel.
- Legislation, administration and financing.
- Co-ordination in formal and nonformal environmental education.

iv) Suggested priorities and strategies for the development of nonformal environmental education.

The resumes of the country reports are included in this final report as Appendix 5.

B) The plenary session of 26 September 1987 was devoted to a technical paper titled Guidelines for the Development of Nonformal Environmental Education (EE No. 23).

C) Other technical papers presented and discussed during the plenary sessions from 27-29 September included:

i) Process for Developing Nonformal Environmental Education.

ii) The Concept, Importance, Need and Priorities and Target Groups for Non-formal Environmental Education.

iii) Major Environmental Issues and Problems to be Approached Through Nonformal Environmental Education.

iv) Methods, Materials, Training of Personnel, Evaluation, Legislation, Administration, Financing and Co-ordination Mechanism in Nonformal Environmental Education.

The above technical papers were discussed by the participants and certain strategies and guidelines were developed by the meeting which are reflected under Section III of this report.

3. Closing Session

The closing session was chaired by Professor Saber Selim. He expressed satisfaction with the work of the participants and observers and thanked them for their concerted efforts and contributions towards the outcome of the meeting. He called on Dr. Abdul Ghafoor Ghaznawi to make a statement at the closing session of the meeting.

Dr. Abdul Ghafoor Ghaznawi referred to the objectives, inputs and outputs of the meeting and expressed satisfaction with the successful ending of the meeting which was only made possible by the rich documentation prepared by the participants, by the hard work of the Dean of the Faculty of Education, the Organizing Committee, and the different services of the Faculty mobilized in rendering the needed services and help during the meeting. Dr. Ghaznawi thanked H.E. Dr. Fathi Sorour for opening the meeting, the President, Vice-President of Ain Shams University and the Dean of Faculty of Education for rendering all the needed services and providing all the required facilities for the meeting. He congratulated Dr. Ali Labib Ibrahim, Dean, Faculty of Education for his re-election as Dean for a second term, which took place during the meeting and thanked him for his generous hospitality. Dr. Ghaznawi appreciating the work of the participants added that the thoughts, strategies and guidelines generated and conclusions drawn during the meeting shall go a long way towards facilitating the development of nonformal environmental education for developing environmentally literate citizens. (For text see Appendix 3D).

Professor Saber Selim called on Dr. Ali Labib Ibrahim, Dean, Faculty of Education to close the meeting. Dr. Ali Labib Ibrahim in his closing address said that we have all benefited from the fruitful deliberations that have taken place during this week and hope that it would lead to further follow-up meetings and activities. He thanked Dr. Abdul Ghafoor Ghaznawi of UNESCO, all the participants and the members of the Organizing Committee for their close collaboration in concluding the meeting successfully. (For full text see Appendix 3E).

4. Acknowledgement

Mrs. Watfa A. Jabi from Jordan expressed the following on behalf of the participants at the closing session of the meeting:

I would like to begin this acknowledgement by paying special tributes and gratitudes to God, All Mighty, for guiding this International Consultation Meeting on Developing Nonformal Environmental Education, which took place at the Faculty of Education of Ain Shams University in Cairo, Egypt, from 26 September to 1 October 1987, to a successful end, with enjoyable and very beneficial discussions and conclusions.

I would also like to thank the Government of Egypt for allowing the meeting to take place in her Capital City, Cairo.

We thank the President of Ain Shams University for providing this historic Institution of Higher Education as the venue of the meeting.

Further our special thanks go to Prof. Ali Labib Ibrahim, Dean, Faculty of Education, Ain Shams University, for not only making available all the required facilities including the staff and the auxiliary workers towards HITCH-FREE sessions, but for making himself available throughout the meeting despite his tight schedule as a Dean. To him and his Organizing Committee as well as all other persons, who have contributed in making the meeting not only an enjoyable one but a very memorable occasion, we are indeed indebted to them all and we are most grateful.

We thank UNESCO for sponsoring this very important meeting in the field of Environmental Education which is emerging as an important measure for the solution and prevention of environmental problems and improvement of the environment.

Special mention must be made of Dr. Abdul Ghafoor Ghaznawi, UNESCO representative from Paris, and the coordinator of this meeting, who has worked and contributed in the preparation and organization of this meeting for which we thank him.

Our thanks also go to the members of the Bureau and the Steering Committee of the meeting especially the Chairman, Prof. M. Saber Selim of Egypt, under whose Chairmanship as an experienced educator, the meeting had been able to come-up with very concrete, far-reaching and useful conclusions.

I wish my co-participants a pleasant journey back to their respective countries.

Thank you and God bless you.

III. STRATEGIES AND GUIDELINES FOR DEVELOPING NON-FORMAL ENVIRONMENTAL EDUCATION

1. The Concept, Needs and Priorities, Target Groups and Process

1.1 The Environment

The environment is the sumtotal of physical, biological, social, economic, spatial, aesthetic, cultural, technological and political elements, surrounding man, and their interactions. Our understanding about these interactions are on the increase. For example, during the Stockholm Conference it was presumed that "poverty causes pollution", but today in most countries, especially in the developing countries of Asia, Africa and South America, it has been found out that "pollution causes poverty". Some of the developmental plans and programmes drawn for immediate benefits have caused more loss than gain. Such actions depleted non-renewable natural resources, increased the poverty which in turn, caused further environmental degradation. The developmental programmes and protection of environment both are needed and are not incompatible. It requires proper understanding about the environment and careful assessment of the developmental needs.

1.2 Environmental Education

1.2.1 Background

Principle 19 of the Stockholm Conference defined environmental Education as:

"Education in environmental matters, for the younger generation as well as the adults, to broaden the basis for an enlightened opinion and responsible conduct by individuals, enterprises and communities in protecting and improving environment in its full dimensions".

Environmental education for the entire world population was recommended to create awareness, concern, knowledge, skills, attitudes, motivations and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones (the Belgrade Charter, 1975). The framework, principles and guidelines for environmental education at all levels - local, national, regional and international - and for all age groups, both inside and outside the formal school system, were drawn in the Tbilisi Conference (1977).

Following the recommendations of the above Conference, efforts have been made in most countries of the world to develop and transact environmental education. It has created tremendous environmental awareness. And never before, it has been so strongly felt to strengthen environmental education because it has been realised that human survival depends upon the solution of environmental crises. A well designed environmental education can help to avert the crises.

1.2.2 Priority Needs for Environmental Education

Three broad needs for fostering environmental education development are:

i) To develop general awareness of the necessity of environmental education.

ii) To develop concepts, methodological approaches, materials, training of personnel, evaluation, financing, administration, legislation and co-ordination for effective implementations of environmental education.

iii) To incorporate an environmental dimension into the existing formal and nonformal educational system.

iv) To train and retrain needed personnel on the concept, development, implementation and evaluation of nonformal environmental education.

1.2.3 Goals and Objectives

Environmental education should constitute a comprehensive life long education. It must prepare the individual for life:

i) through an understanding of the major problems of the contemporary world,

ii) with the provisions of skills and attitudes needed to play a productive role towards improving life and protecting the environment.

iii) with the realisation of the fact that natural environment and man-made environment are inter dependent,

iv) with the feeling that there exist links between the acts of today and consequences of tomorrow,

v) with the thinking that inter-dependence of all national communities and solidarity of mankind are essential for human survival,

vi) with the development of environmental ethics as man's inner forces for sound environmental behaviour.

The goals, objectives and guiding principles of environmental education according to the Tbilisi Conference are:

A) The goals of environmental education:

i) to foster clear awareness of, and concern about economic, social, political and ecological inter-dependence in urban and rural areas,

ii) to provide every person with opportunities to acquire the knowledge, values, attitudes,

commitment and skills needed to protect and improve the environment,

iii) to create new patterns of behaviour of individuals, groups and society as a whole towards the environment.

B) The categories of Environmental Education objectives:

Awareness: to help social groups and individuals acquire an awareness of and sensitivity to the total environment and its allied problems.

Knowledge: to help social groups and individuals gain a variety of experience in, and acquire a basic understanding of the environment and its associate problems.

Attitudes: to help social groups and individuals acquire a set of values and feelings of concern for the environment, and the motivation for actively participating in environmental improvement and protection.

Skills: to help social groups and individuals acquire the skills for identifying and solving environmental problems.

Participation: to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolution of environmental problems.

1.2.4 Some guiding principles for Environmental Education:

Environmental education should :

i) consider the environment in its totality - natural and built, technological and social (economic, political, technological, cultural-historical, moral, aesthetic);

ii) be a continuous lifelong process, beginning at the pre-school level and continuing through all formal and non-formal stages;

iii) be interdisciplinary in its approach, drawing on the specific content of each discipline in making possible a holistic and balanced perspective;

iv) examine major environmental issues from local, national, regional and international points of view so that students receive insights into environmental conditions in other geographical areas;

v) focus on current and potential environmental situations, while taking into account the historical perspective;

vi) promote the value and necessity of local, national and international co-operation in the prevention and solution of environmental problems;

vii) explicitly consider environmental aspects in plans for development and growth;

viii) enable learners to have a role in planning their learning experiences and provide an opportunity for making decisions and accepting their consequences;

ix) relate environmental sensitivity, knowledge, problem-solving skills and values clarification to every age, but with special emphasis on environmental sensitivity to the learner's own community in early years;

x) help learners discover the symptoms and real causes of environmental problems;

xi) emphasize the complexity of environmental problems and thus the need to develop critical thinking and problem-solving skills;

xii) utilize diverse learning environments and a broad array of educational approaches to teaching/learning about and from the environment with due stress on practical activities and first-hand experience.

1.3 Nonformal Environmental Education

1.3.1 Background

Nonformal environmental education is the type of intentional education for the development of, among various sectors of the community, environmental concepts, skills, attitudes and ethics, which are carried on in different communities which may or may not include schools and universities.

The history of nonformal education is much older than that of the formal system of education. Almost all countries of the world like China, Egypt, Greece, India and many more have rich traditions on nonformal education through which experiences of one generation were transferred to the next. This helped not only in building up distinct cultures but in their survival also. For example, the carvings and paintings on the walls of ancient monuments, folklores, folk songs and folk theatres in almost all Indian languages speak about such nonformal education in its true sense. This trend persisted in parallel with the formal persuit of knowledge, which was restricted to a limited scholars and their disciples. Nonformal education, was much valued in India. Three religions - Hinduism, Buddhism and Jainism, which have roots in India, advocated strongly for the need to protect the elements of environment. Emperor Asoka spread the messages of peace and harmony. Those lessons are still valid in the present day society which is under the threat of total anhilition.

The methods, materials, training, legislation and administrative measures adopted in Ancient India towards environmental protection and improvement of human living are worthy of consideration in the context of present day

environmental education, the thinking of which started at the international level in the Stockholm Conference (1972). Recommendation 96 of Stockholm Conference (1972) calls for the development of Environmental Education as one of the most critical elements of an all out attack on the world environment crisis. The International Workshop at Belgrade (1975) came out with the historic document called "The Belgrade Charter" stressing the importance of Nonformal Environmental Education. The following needs to strengthen the Nonformal Environmental Education were highlighted there:

i) International exchange of information on all aspects of out-of-school environmental education;

ii) Reinforcement of educational and community support;

iii) A direction for Nonformal Environmental Education Programme at the national and local levels;

iv) Extensive research related to Environmental Education of young learners with special emphasis on early childhood awareness;

v) Research into the use of non-school learning environment for Environmental Education;

vi) Research on the strategic role of information.

1.3.2 Target Groups

The target groups of Nonformal Environmental Education include entire population when they are not exposed to the formal classroom situations.

As defined in the Belgrade Charter (1975), the target groups of Nonformal Environmental Education are: "The youth and adults, individually and collectively, from all sections of the population such as the family, workers, managers and decision-makers in environmental as well as non-environmental fields."

Target population for nonformal environmental education is diversified. It includes pre-school children, school and college dropouts, literate and illiterate adults, workers, farmers, housewives, professionals, etc. This wide range of population groups is to be considered when planning the programmes, choosing the content and media along with other details.

In some cases the target population is somewhat homogeneous: workers in a certain industry, farmers, club members, policemen, etc. Such homogeneity makes planning, implementing and dissemination of environmental education programmes easier.

In order to develop successful nonformal environmental education programmes, some basic data about the target groups and their characteristics must be available. Their interests,

abilities, superstitions, beliefs, customs, attitudes and ways of everyday life are needed for planning effective nonformal environmental education programmes.

Reading abilities of the group, previous education has to be surveyed. Age grouping, possible locations of gathering has to be identified. Such locations could be evening schools, social clubs, mosques, churches, army units, rural clubs, industrial settlements, or any other locations. It is impossible, however, to pinpoint the location of all the target groups for a nonformal environmental education programme. Some will be reading newspapers almost anywhere, others watching T.V. in various places or listening to the radio while carrying on some of their daily responsibilities. This makes it difficult to locate the intended groups unless they are told to gather in certain places. It is therefore necessary to have the programmes widespread, overlapping, and shooting at many directions and targets at the same time.

1.3.3 Priority Needs

Priority needs for the planning and development of nonformal environmental education are qualified personnel, relevant teaching/learning materials, budgetary provisions, administrative infrastructure and legislation, etc.

1.3.4 A Process for Developing Nonformal Environmental Education

Environmental education is intended to strengthen the means of promoting perceptions to guide new patterns of behaviour between humanity and the environment. Therefore it is an intentional process and must lead to the attainment of functional environmental literacy. Both formal and nonformal environmental education must have common goals, objectives and guiding principles. The target population of nonformal environmental education is diverse and they do not require any graded exposure to content. Depending upon the nature and abilities of the target group, effective programmes of the nonformal environmental education may be developed. Formal education system in the society must come closer to the nonformal education.

The following steps may be considered in the process of developing nonformal environmental education:

A. Programme Construction

This is the process of building the programme from scratch for certain situations. It would be more realistic and effective if nonformal environmental education programmes are based on case studies. To construct a programme it is vital to use the following information:

i) The nature of environmental problems and its importance and priorities.

ii) Objectives which have to be stated in light of the nature of the problem and desired changes in behaviour of the target group.

iii) The background of the target group, abilities, etc.

iv) The media: proper and available media has to be identified and whether the programme uses a single or multi media.

v) Methods to be used in the implementation of the programme should be identified and details agreed upon.

vi) Evaluative techniques and instruments have to be constructed.

B. Programme Production

This step covers the details of integrating all the above information and suggestions into a workable programme or programmes ready to be used for nonformal environmental education. Efforts of educators, artists, ecologists, physhologists are needed to produce a sound programme.

C. Trial

The programme should be tried out on a limited representative sample of the target group to test the different aspects of the programme. In this step the feasibility of objectives, suitability of the content, practice-ability of the presentations, methods and media are tested and evaluated. Certain changes may be introduced to improve the programme to be ready for the next step.

D. Implementation

This is the stage of trial on a limited scale on larger samples and by more personnel to make sure of the quality of the different aspects of the programme. It also reveals the competencies of personnel to handle the programme to achieve the goals and objectives sought.

E. Dissemination

Passing through the previous steps, the programme will be ready for presentation on the widest scale. This can be achieved through different channels and means:

i) Distribution of materials.

ii) Use of centres.

iii) Diffusion through mass media.

iv) Use it in the training of personnel.

F. Training Required Personnel

Three categories of personnel required for developing nonformal environmental education programmes are planners, developers and executors. All these categories of people must be oriented towards a homogeneity in thinking and doing.

Various methods may be adopted in transacting the programme and efforts should be made to make it participatory. The advantage of educational technology, which has come in a big way, must be meaningfully utilized.

IV. ENVIRONMENTAL ISSUES AND PROBLEMS

The issues and problems of environment which are to be tackled by nonformal education are basically the same as formal education. In the case of nonformal education, as the target groups are much larger and varied, the task becomes upheavel. Within a limited time period, the target groups are to be motivated in such a way that they continue to learn, think and act in new ways to resolve their environmental problems. Such environmental problems are population, energy, resource depletion, pollution, poor sewerage and drainage system, deforestation, desertification, lack of safe drinking water, flood, drought, inadequate housing, extinction of species and ecosystem degradation. Each problem includes several issues which all citizens must become familiar with in order to become abler for making better decisions concerning the environment.

1. Population

The developing countries are under the pressure of population increase (India 750 million, Nigeria 100 million). The rate of increase is from 2 - 3% every year. A wide gap exists within the population of these countries between the rich and poor, and the illiterates and the highly educated ones. While a small minority continues to accrue the development benefits, the large majority of the population continues to be the victim of exploitation, poverty, malnutrition and hunger. One solution to this problem is to increase food production, implementation of development programmes. But all these efforts are bringing a new set of environmental problems i.e. excessive use of non-renewable energy, deforestation, soil erosion, silting of rivers, leaching of the soil, desertification, drought and flood. Education of all the citizens is a must in order that they understand the intricacies of these environmental problems and become aware of the need for an integrated plan to reduce birth rate, promote sustainable development and foster a new social order ensuring appropriate distribution of resources. Teaching units for different target groups need to be developed on the different aspects of population.

2. Energy Shortage

The increase of population is associated with the increase of energy consumption. Excepting food, most of the sources of energy are non-renewable. In order to eradicate poverty, most of the developing countries introduced technology-based development programmes. Most of such programmes were energy-intensive. Before the benefits of these development programmes could reach the majority, much energy resources were consumed. Shortage or scarcity of such energy sources affected common people who need it as fuel. New varieties of wheat/rice, required more irrigation, more fertilisers/manure and insecticides/pesticides, each one consuming more energy resources. The short height of these new varieties of wheat/rice caused fodder crisis and affected the domestic cattle population. Imperfect and inappropriate technology caused environmental pollution.

A number of steps have been taken as "save energy" effort. A new kind of cooking stove (with reduced heat loss and less pollution), biogas plants are tried out as alternate technology in some developing countries. Energy-intensive transport system is taking a heavy share of developing countries foreign exchange. The development of natural ethylalcohol programme of Brazil may be a sign of hope in this area.

Nonformal environmental education should attempt to explain these issues, so that general citizens can evaluate the intricacies involved.

3. Resource Depletion

The exhaustibility and shortage of some natural resources has become an environmental, social, political and economic problem. Citizens should become aware of and knowledgeable about it. For example, shortage of water and food immediately endangers the life and health of people, especially in semi-desert and desiccated areas. Similarly, shortage of raw materials and energy significantly affects the technical and economic development of society and thereby also the life of people. Still in our memory is the power crisis which was brought about by humanity's realization of the exhaustibility of crude oil reserves.

Soil damage, erosion, soil requisition has become an environmental problem which should be brought to the attention and knowledge of the general public. For example, soil is an exhaustible resource for food production. Damage to the soil is mainly related to the extensive use of mineral fertilizers and pesticides, the use of heavy machinaries in agriculture which disturb the soil structure, cause deforestation and soil desiccation which opens the way to water and wind erosion. In some countries soil is being requisitioned for building. The said problems are specifically manifested in all parts of the world.

4. Pollution

The pollution was once thought as problem of developed countries. Very soon it has been realized that it is equally acute in developing countries, affecting the health and life of the population who are already victims of poor health.

Pollution of the hydrosphere, i.e. the contamination of seas as well as of surface and ground waters has become a significant environmental problem. Water is indispensable for life and is thanks to its circulation an inexhaustible resource but as a result of contamination may become unusable and harmful. The level of contamination of certain water courses, e.g. the Elbe river, the Ganges and inland seas, e.g. the Mediterranean, is becoming extremely dangerous.

Physical and chemical contamination of the atmosphere which in the present may be the cause of large-scale climatic changes, namely the so-called green house effect connected with the increase in carbon oxide levels, and which in many parts of the world is already damaging and destroying entire ecosystems, e.g. the amount of sulphur oxide, nitrogen oxide, ozone, etc., affecting large forests in Europe and in North America.

Chemicalization of the environment affects all components of the environment including man. It comprises the accumulation of non-degradable wastes in the environment and changes in the environment and in living organisms caused by toxic, mutagenic, teratogenic and cancerogenic substances. Substances which are alien to nature appear in all parts of the world and are even carried into places inaccessible to man by atmospheric and water flows.

Physical negative phenomena in the environment are of extremely varied origin and are by far not all known to man. The most frequent is the rising radioactivity of the environment, noise and vibrations. Nuclear tests and accidents of nuclear facilities are global threats having serious consequences for living nature and for the health of people. Noise and vibrations are global phenomena manifested more or less on a local scale. They accompany population concentration, production activities and transport and immediately threaten the health and life quality of people.

5. Poor Sewerage and Draining System

Most of the countries of Asia and Africa suffer from environmental problems due to poor sewerage and drainage system. This creates water logging in low lands and stagnation of waste materials within the habitation. Such wetlands soon become wastelands and improper sewerage causes various diseases. This problem was once thought to be only of rural areas, but now it is found in many cities and specially in urban-marginal zones, which are crowded beyond its capacity. Lack of proper facilities are affecting the environmental sanitation of the locality and thus causing damage to the health of the inhabitants. Improper township planning, non implementation of municipal or civic body facilities together with the ignorant and unconcerned behaviour of the residents are the two main factors.

6. Deforestation

Deforestation has been noted in countries which were known for its forests. The demand of land for new habitation, new developmental programmes and more food production have denuded the forests. With this has combined the indiscriminate cutting of trees for paper mills, furniture-making and fuel. Once it was thought that poverty-stricken local people are responsible for deforestation. It is now known that the majority of the beneficiaries of paper, furniture and fuel, stay far away from the forest and in the urban areas. Most of the forest trees take a long time to grow. The deforestation brings changes in the weather and makes the soil incapable of holding the surface

water. This causes soil erosion, flood and at the end of the rainy season leads to the drought. All these calamities affect people who are far away from the forest. The removal of forests changes the ecosystem and thus affects other living beings present there. The efforts are now being made to replenish the loss by afforestation programmes. The selection of the right kind of trees is an important issue.

7. Lack of Safe Drinking Water

Inspite of tremendous scientific and technological advancement most citizens in most developing countries are not assured of safe drinking water. In places, women spend 6 - 8 hours everyday to collect a few buckets of water. The problem becomes more severe in summer. The influx of population has created water scarcity in the urban areas. Even water is available, it is usually not safe for human consumption. The polluted water sources due to various reasons, poise immense threat to the people. Various technological measures are adopted to ensure the availability of water. At the same time, it has been understood that this problem being intimately associated with other depletion of resources, cannot be solved in isolation. An integrated plan is required for solution and prevention of environmental problems especially that of water as one of the most important basic need.

8. Flood and Drought

In many places of Asia and Africa, this is a regular feature causing damage to the human life and property. The main reason is the silting of rivers which become unable to carry the heavy flow of water during the rainy season. The causes of flood are linked with the deforestation, soil erosion, construction of dams in wrong sites and river pollution. In fact, flood is one side of the same coin, the other side of which is drought. The application of well known environment improvement measures can check both these environmental disasters.

9. Inadequate Housing

Shelter is one of the basic needs of human beings. A large population in developing countries live under the open sky. This problem is more severe in urban areas, where over-population forces the human being to live in a crowded room and under sub-human conditions. The reduction of flow to the urban areas by adequate rural development programmes, construction of low cost houses using locally available material and adoption of population control measures can help towards the solution of housing problems.

10. Extinction of Species

Endangerment of the wealth and variety of living nature, its genofund is an environmental problem that the general public should become aware of and knowledgeable about. This problem poses the danger of the extinction of some species of plants and

animals, the destruction of conditions for their existence by the disruption of ecosystems and landscapes, e.g., in connection with irrational mining, water and air pollution, the disruption of balance in nature, e.g., by the inconsiderate introduction of alien organisms.

11. Ecosystem Degradation

Each ecosystem has certain interdependent components involving living and non-living. If any of this component is damaged it causes the degradation of ecosystem. The deforestation causes soil erosion, flood, drought, and disappearance of other living beings. The expansion of human urbanisation through implementation of various developmental programmes have caused degradation of many ecosystems and affects all the components including human beings. Whenever a forest or agricultural land has been encroached, the local people find no other alternative but to leave the place and crowd in urban areas for doing any kind of odd jobs. There are other problems which concern the devaluation of the man-made environment, i.e. cultural monuments, sites and settlements and last but not least the working environment. They also include problems arising in inter-personal relations, negative phenomena in these relations which arise from the excessive concentration of the population in some places and give rise to dangerous mental situations, feelings of estrangement, drug addiction and violence.

Environmental problems have their specific manifestations in different regions and places. They are the consequence of various human activities and of the attained level of their development, namely of agriculture, forest and water management, industry, transport but also of the way of life of the population, including their leisure time activities and recreation.

Every area has certain specific environmental problems which are related to certain specific human activities on which attention should be focused. Environmental problems are concentrated especially in big cities and conurbations, areas with opencast mines and quarries, coastal areas and coastal waters, economically stagnating areas, areas attractive for recreation. Human activities usually act separately is synergic and accumulates. Environmental problems must therefore be studied in their inter-relationships, i.e. using different methods including the system approach.

V. METHODS AND MATERIALS

1. Methods

Non-formal environmental education will be imparted through all the existing channels of non-formal education. These channels are - (i) Out of school activities in the formal education system, (ii) Non-formal education for the non-enrolled and drop-out children belonging to the age group 6 - 14+, (iii) Adult education for the illiterate citizens belonging to the age group 15+ to 35+, (iv) Distance education through correspondence courses, radio and TV lessons, (v) Open Universities, (vi) Mass education programmes of media (press, radio and TV) and (vii) Activities of the voluntary agencies. All these channels are rooted with the environment, what is required is to strengthen the environmental dimensions of these programmes. Some non-formal education follows the aims and objectives of the corresponding level of formal curriculum and may lead to the entry into the formal system. The other non-formal educational programmes are intentional and the takers of this education may be participatory or non-participatory. A large number of methods depending upon the age group are followed in the non-formal environment education. Some are given below:-

i) Case study method:- The learners study various case studies developed on various aspects of environment education. Through discussion, they internalise the messages and attempt to utilise in their own environment. The case studies dealing with the positive results should be taken first.

ii) Measurement, monitoring and sampling activities:- This provides opportunity of "learning by doing". The first hand observation through self-finding becomes moreconvincing. The techniques learnt may be used in future for independent study.

iii) Simulation, modelling, role playing and game method:- These methods provide opportunities to experience on different dimensions of environment in concrete terms. All these items provide fun, attract the participants to the basic issues and fulfil awareness and other objectives of environmental education.

iv) Projects:- The learners either individually or collectively, with the help of teachers, select a specific issue in the environment and work out the details. For this purpose, they may set up experiments, present the date in the bulletin board, prepare models and diagrams, collect information from mass media (newspaper clipping, photographs). The development of a project provides the learners more opportunity to interact with the teacher, to read a few more books or other printed materials, to come in contact with various people and agencies and to explain our thinking to the others.

v) Problem solving:- It involves the application of the process of science to know the unknown. Through critical observation, a problem is identified. Several answers are predicted to formulate hypotheses. Each hypothesis is tested and data is collected in a proper way. After analysis of the data, an inference is drawn and decisions are taken whether to accept or reject the hypotheses. In the problem solving method, neither the teacher nor the learners know the answer and both together venture to know the unknown. Besides the learning of details of a particular problem in the environment, the problem solving method brings a sense of concern and helps to develop the power of data base decision making.

vi) Theatre:- This is an ancient medium of folk entertainment. In different countries the form of theatre varies. A plot developed on a particular theme is enacted before the audience. The audience carries the message home as dialogues heard in the theatre. The "street corner theatre" using no stage in recent years have become extremely successful in disseminating anti-war and anti-pollution messages.

vii) Poems, songs and other creative arts:- These forms of human expression are often attractive and effective in communicating messages of environmental education. Learners may be encouraged to do it themselves or to listen and see the works of others.

viii) Story-telling:- A very effective method for teaching the lower group. The incidents from holy books and stories of fables help in disseminating environmental ethics most effectively. The art of story telling also impresses any age group, attracts the listeners' imagination to the issues and problems in environmental education.

ix) Debates and different competitions:- It creates a healthy atmosphere to come out into the best form of expression. Both the participants and the speakers get the opportunity to listen to different views both for and against the issue. Besides debate, lectures, story telling, recitation, etc. may also be organized on competitive basis. The painting competition is also another interesting method which could be utilized for different age groups to depict certain aspects of the state of the environment. Rewarding the winners provides motivation for larger and active participation.

x) Exhibitions:- The organization of science exhibitions is also a very good method of environmental education for both the learners as well as other community members. The visuals and demonstrations help to disseminate many pertinent messages.

xi) Science March:- A procession with posters, placards and slogans highlights environmental messages to travel from one place to the other (may be a few kilometers to thousands of

kilometers) on its way in different places, demonstrations, lectures and meetings are held for the people of that particular community. In many countries this has been found to be effective in mobilising the community against the increase of environmental problems.

xii) Field trips, camping and excursions:- This provides experience of living together. It helps to learn many techniques like mapping, collection, identification and preservation. These activities bring learners close to the nature and help to know many unknown practices and cultures. Field trips may be only in the school, garden or to reserve forests, zoos or museums. The camping while trekking or in a reserve forest provide thrilling experience. Excursions are held on sea-beach or places of educational importance. The success of all these activities depend upon imagination and creating teaching learning situations on the spot of activity.

xiii) Celebrations of environmental occasions:- Almost all countries of the world, celebrate certain days which are attached with the specific environmental activities e.g. harvesting. The celebration of these days with the environmental education programmes attract a large number of cummunity members. In recent years, "Environment Day", "Science Day", "Environment Month" etc. are celebrated in many countries. Popular lectures, exhibitions and processions may be organized on these occasions. The 1990s is envisaged to become a Decade for Environemntal Education. This will draw the attention of Governments, decision makers, educators and students as well as the community members at large. It is suggested that a handbook of environmental education activities be prepared by IEEP and disseminated widely to spur thinking and actions concerning the environment during the Environmental Education Decade.

2. Materials

The instructional materials used for the different types of non-formal education are based on well designed curriculum. In order to know about the materials, it is necessary to understand the base of curriculum development.

In order to develop the curriculum for all the different types of non-formal environmental education, the goals and objectives of Tbilisi Conference (1977) are followed as base. These goals which are to be satisfied are arranged under four levels:-

(1) Ecological Foundation Level
to develop an understanding about the eco-system.

(2) Conceptual Awareness Level
to develop an understanding about the issues and values which influence the relationship between the quality of life and the quality of the environment.

(3) Investigation and Evaluation Level
provision of information to create awareness, knowledge and skills that allow the individual to develop the ability to investigate issues and to evaluate alternative solutions.

(4) Environmental Actions Level
to enable the learner to put his knowledge and skill into positive environmental action.

The determination of goals is followed by the selection of instructional objectives for each level and development of valid instructional materials around the selected objectives. The goals may then be modified to meet the local needs and an instructional model is developed. The instructional material must meet the following requirements:

i) It must be scientifically/factually correct;

ii) It must include scientific, social, economic and aesthetic, ethical and other components of environment;

iii) It must promote learning by doing;

iv) It must foster critical thinking;

v) It must be highly effective at low cost.

The materials used for non-formal environmental education fall under two categories - printed materials and audio-visual materials. Both these instructional materials are generally developed in local languages and they being local specific are also different from each other. The kinds of materials which are used in the different types of non-formal education are given below :-

i) Out-of-school activities
Handbook of activities; project books; laboratory manuals; teachers' guide; equipment for survey and monitoring; kits with kit guide.

ii) Nonformal Education for 6+ to 14+
Primers of textbooks; teachers' guide; resource books; posters; pamphlets; charts; slides; photographs; films; newspaper and magazine articles and supplementary reading materials; educational toys and games; equipment for survey and monitoring; kits with kit guide.

iii) Adult Education Programme (15+ to 35+)
Curriculum guide; textbooks or primers; teachers' guide; project books; supplementary reading materials for the neo-literate; films; slides; newspaper and magazine articles; equipment for survey and monitoring; kits with kit guide; educational softwares (radio, TV, computer).

iv) Continuing Education
Popular science and environment related books; teachers' guide; printed materials of radio and television lessons; modules on specific topics; softwares for the TV, video and computer.

v) Tertiary Level
Textbooks; popular science books; supplementary reading materials; laboratory manuals; handbook of activities; charts; posters; films; slides; TV and computer software; equipment for survey and monitoring;

vi) Mass Education Programme
Newspaper; magazine; books; booklets; charts; folder; educational softwares (for radio, TV and computer).

Each training centre (at least one at national level) must develop an instructional material centre for collecting, exchanging and disseminating various instructional materials.

VI. TRAINING OF PERSONNEL IN NON-FORMAL ENVIRONMENTAL EDUCATION

1. Target groups for training

Personnel identified for training in non-formal environmental education include teachers, nature guides, mass media personnel, conservation officers, popular science writers, agricultural extension workers, managers of clubs, security personnel, environmental law enforcement officers, personnel responsible for religious programmes and decision makers.

It was further elaborated that, in order to reach a bigger number of trainees, training of the above categories of personnel might be geared at the level of

i) decision makers,

ii) programme planners or organizers, and

iii) implementaters of training programmes.

2. Strategies for training programme formulation

i) Training programme be based on the needs of the trainees or the respective target group to be trained as trainer. Similarly, training programme should cater for the needs of those target groups for whom the trainers are trained.

ii) Training programmes should be continuous in order to up-date the awareness, knowledge and skills of the trainers with respect to the rapid knowledge expansion in the domain of environment and into associated problems.

iii) Training programmes may develop competencies as the following:

a. Sufficient knowledge of the laws and principles of the environment and environmental problems and their application in the teaching/learning processes.

b. Ability to select, develop and implement curricular materials in non-formal environmental education.

c. Ability in group dynamics concerning leadership, human relations, communication and media utilization. Furthermore, the environmental education trainer should be competent to take positive environmental action for the purpose of achieving and/or maintaining a dynamic equilibrium between quality of life and the quality of environment, and to develop, select and/or implement curricular materials and strategies to

develop similar competencies in receivers to take individual or group action when appropriate (i.e. persuasion, consumerism, political action, legal action, co-management, or combinations of these actions.

d. Ability in evaluation techniques and processes and interpretation of data for self-improvement and programme amelioration.

e. Ability in the application of scientific method involving investigation and research, observation, collection and analysis of data on the environment and its changes, predicting and drawing conclusions and their application in the teaching/learning processes which could develop similar competencies in receivers, including:

- the knowledge and skills needed to identify and investigate issues (using both primary and secondary sources of information and to synthesise the data gathered);

- the ability to analyse environmental issues and the associated value perspectives with respect to their ecological and cultural implications;

- the ability to identify alternative solutions for discrete issues and the value perspectives associated with these solutions;

- the ability to autonomously evaluate alternative solutions and associated value perspectives for discrete environmental issues with respect to their cultural and ecological implications;

- the ability to identify and clarify their own value positions related to discrete environmental issues and their associated solutions;

- the ability to evaluate, clarify and change their own value positions in the light of new information.

3. Training programmes

Important components of a training programme in non-formal environmental education were considered: objectives, environmental knowledge or content and appropriate methods and techniques.

A) Objectives

i) To ensure that environmental educators have some understanding of the complex relationships that exist in the environment.

ii) To ensure that environmental educators realize that human activities in the environment must be managed to ensure the sustainable utilization of resources which may be conducive to sustainable development.

iii) To give a variety of first hand, practical activities in the environment.

iv) To ensure that environmental educators understand the way in which the learning process differs with specific target groups.

v) To give the opportunity for environmental educators to practise relevant and varied teaching methodologies.

B) Contents

Environmental knowledge with emphasis on man-environment relationship as the following examples:

i) The biosphere

- Plant and animal communities and the concept of an ecosystem.
- The circulation of substances and energy in the environment.
- Self regulating mechanisms in the biosphere.

ii) Environmental care and management

- Man's exploitation of and impact on ecosystems such as soil, forests, coastal and fresh water habitats. Suggestions for the improved management of these life-support systems.
- Harmful substances in the environment, their source, effect and strategies for their reduction.
- Specific studies of local environmental problems, e.g. overgrazing, wood collection, urban stress, acid rain, etc.

iii) Food, nutrition, health and hygiene.

iv) Global environmental concept and inter-dependencies in the international community.

v) Pressing environmental problems at local, national and global levels.

vi) Environmental legislations and enhancing their enactments.

vii) Principles of behaviour modification and group interaction.

viii) The nature, needs, philosophy, goals, objectives, guiding principles and development of formal and non-formal environmental education.

C. Methods and Techniques

i) Problem solving approach

This is an appealing method as trainees or students get involved in doing something concerning their environment. Problem solving provides a basis for a relevant and meaningful curriculum. It is also highly participatory and allows individuals to develop critical thinking skills which are transferable to many other situations. Furthermore, success in a problem-solving situation, no matter how small and insignificant, can lead to a much improved self image. People begin to realize that they can become change agents for the benefit of themselves and their society. In problem solving approach, the teacher should guide, clarify, co-ordinate, encourage if possible, determine the boundaries of the problem study. Furthermore, the selection of the particilar environmental problem to be examined should come from discussions within the target group. The teacher or group leader may wish to suggest alternative problems to be considered, ensuring that such alternatives are of practical, pragmatic nature and capable of being solved, but in the final analysis high levels of motivation can only be maintained if the group determines the problem to be investigated. Similarly, the teacher or training leader should ensure that the maximum use is made of the knowledge, expertise and experience possessed by members of the group. The problem to be examined will be of a local nature and this will require local knowledge and local experience. As indicated previously the teacher should ensure that contributions from the local officials of various Government Agencies, e.g. health, water, agricultural extension officer, wildlife ranger, etc., are received and understood by the target group but the fund of relevant information collectively possessed by group members should never be underestimated.

ii) Other methods are lectures, seminars, field work, project method, debate, role play and gaming, etc. which are elaborated in the earlier section under Methods and Materials.

iii) Among the techniques priority be given to the implementation and interpretation of evaluation instruments and techniques.

4. Responsible institutions for training personnel

As the target group in non-formal environmental education is found in different places and with different educational backgrounds and needs, it is highly appropriate to mobilize or engage all educational institutions such as the university, schools, religious institutions, social clubs, cultural centres, mass media, professional societies which have established infrastructures and human and financial resources to undertake the development and implementation of non-formal environmental education training programmes. cultural centres, mass media, professional societies which have established infrastructures and human and financial resources to undertake the development and implementation of non-formal environmental education training programmes. Religious institutions such as mosques and churches be given special consideration due to their important place and role in shaping individual and public opinions and their life styles.

5. Duration of Training

Duration of training should be determined by the needs of the target groups. Decision makers do not have much time and thus their programme may involve half a day or one day seminar. But for trainers it should be long enough to give them the necessary environmental knowledge and required teaching methodologies for the acquisition of required competencies referred to earlier. Furthermore, training duration is determined by the nature of an envisaged programme.

6. Evaluation

Evaluation is an integral of an educational undertaking. It is essential in non-formal environmental education as well in order to find out to what extent the aims and objectives of a training programme or project have been achieved. Evaluation in non-formal environmental education may focus on:

i) the design of the project or programme,

ii) the cognitive, affective and skills aspects of the goals to be achieved by participants,

iii) the financial, cultural and political conditions for its feasibility,

iv) the acceptability of content to learners, teachers and organisers,

v) the methodologies used by the teacher/group leader,

vi) the teacher/learning materials,

vii) the recruitment and training of the teachers/group leaders,

viii) the effectiveness of the programme in preventing/ reducing environmental abuse.

It should, however, be pointed out that evaluation in non-formal environmental education has its constraints as well because of the difficulty in training behavioural and attitudinal changes which take time. Furthermore, the training programme may not be long enough or the trainees could not be available to follow a behavioural modifications which is the very core of non-formal environmental education objective and that of its evaluation.

An important need to be fulfilled in evaluation in non-formal environmental education, is to develop, test and standardize for certain groups a series of evaluation tools. The training of experts in this domain is a high priority.

VII. LEGISLATION

All the country reports stressed the importance of legislation for the protection of the environment and the benefit of humanity, on the national and international levels.

At the national level, laws to protect monuments, architectures, forest, air and to prevent noise pollution, water pollution, and to care for wild life are in force for a long time.

Governments frame rules to regulate environmental protection. Persons carrying on industrial operations are not to allow emission or discharge or emit any environmental pollutant in excess of the prescribed standards. Persons handling hazardous substances must comply with procedural safeguards and furnish information to the authorities and agencies in certain cases. There are also laws which regulate cutting of trees in the forests and hunting of wild life.

At the international level, a number of agreements on various aspects of environmental protection have been signed, but there is a need to go beyond agreement, to the formulation of laws and to their effective implementation. Furthermore, legislation alone cannot be effective unless people are made aware of the importance of the environment and the need for its protection and improvement which can only be achieved through formal and non-formal environmental education.

VIII. SUGGESTED DOCUMENTS AND ACTIVITIES

The meeting suggested the development of the following documents and activities in non-formal environmental education to be undertaken by IEEP:

1. Documents

   i) Religions and environmental protection.

   ii) Environmental ethics: what it is, how to develop and assess it.

   iii) Case studies on drastic environmental changes that have affected man through the ages.

   iv) Handbook of activities for non-formal environmental education.

   v) Guidebook for developing non-formal environmental education.

   vi) Tourism, a medium for non-formal environmental education.

2. Activities

   The following activities are suggested:

   i) International training course for environmental education decision makers.

   ii) Production and dissemination of prototype comprehensive non-formal packages.

   iii) Inclusion of environmental messages in tourist brochures.

CONCLUSION

- A definition of non-formal environmental education was reached as "The type of intentional education, for the development among various sectors of the society of environmental concepts, skills and attitudes, carried on by various community institutions which may or may not include the schools and universities".

- The target group for non-formal environmental education is all the population while not exposed to regular situations in schools and universities.

- The objective of "fostering the development of environmental ethics as man's inner force for sound environmental behaviour" should be studied further, developed and emphasized.

- Non-formal environmental education programmes can be adopted, adapted or constructed.

- In the process of developing non-formal environmental education the constructed programmes should pass through trial, implementation and dissemination steps.

- Personnel responsible for the development of non-formal environmental education programmes are planners, developers and executors and they should all work as a team.

- It was noticed that many programmes of environmental education are associated mainly with the problems of the environment which sometimes makes the concept "environment" meaning pollution, exploitation, etc. To avoid that misconception, in developing non-formal environmental education the starting point should be with the positive man-environment relationships, interaction, dependability, destiny, etc., before dealing with the negative man-environment actions resulting in all environmental problems.

- The substance or context of environmental education programmes (formal and non-formal) is usually derived from environmental issues and problems. This probably leads to the emphasis of the negative, man-environment actions mentioned before. It is seen, however, that another dimension should be added which is foundations of the environment, its laws and guiding principles governing man-environment relationship.

- Many methods should be utilised for non-formal environmental education programmes: case studies, problem solving, reinforcements (awards, etc.), expressive arts, projects, environmental marches, camps, excursions and field trips, celebration of environmental occasions, survey of environmental conditions, demonstrations, etc.

- Materials for non-formal environmental education programmes include printed matter (newspapers, posters, charts, brochures), audio (radio) and audio-visual (T.V., films, sound filmstrips), computer software on environment, specimens, museums, historic monuments, environmental kits, simple equipment, toys and games, information centres, data banks, etc.

- Personnel can be categorized under: decision makers, organizers and implementers.

- Training of personnel should be a continuous process, geared to personal needs of trainees and in light of intended target groups and outcomes of programmes undertaken.

- Training programmes for personnel should be competency based, and should help the trainees to be better planners, organizers and implementers.

- The meeting suggested a number of publications and future activities to be carried out by IEEP.

APPENDIX I

AGENDA

1. Opening Session

2. Presentation on the background and activities of UNESCO-UNEP International Environmental Education Programme (IEEP) by UNESCO Programme Specialist.

3. Presentation of country reports on non-formal environmental education by participants from Egypt, Nigeria and Jordan.

4. Presentation of the working document entitled Guidelines for Developing Non-formal Environmental Education (EE No. 23) by UNESCO Programme Specialist.

5. Presentation of the document entitled the Concept, Importance, Needs, and Priorities and Target groups in Non-formal Environmental Education by the participant from Denmark.

6. Presentation of the document entitled Process for Developing Non-formal Environmental Education by the participant from Egypt.

7. Presentation of the document entitled Major Environmental Issues and Problems to be Approached through Non-formal Environmental Education by the participant from Czechoslovakia.

8. Presentation of the document entitled Methods, Materials, Training of Personnel, Evaluation, Legislation, Administration, Financing, and Co-ordination Mechanisms in Non-formal Environmental Education by the participant from India.

9. Suggested documents and activities in Non-formal Environmental Education to be developed by IEEP at subregional, regional and international levels.

10. Study of draft final report.

11. Closing session.

APPENDIX 2

LIST OF PARTICIPANTS

1. Prof. M. Saber SELIM
   Faculty of Education
   Ain Shams University
   Roxy, Heliopolis,
   CAIRO, EGYPT.

2. Dr. Danuse KVASNICKOVA
   Institute of Applied Ecology and Ecotechnology
   Kostelec Nad Iernymi Lesy
   University of Agriculture
   PRAGUE, CZECHOSLOVAKIA.

3. Mrs. Watfa A. JABI
   Ministry of Education
   AMMAN, JORDAN.

4. Engineer A. Mustapha A. SHEKONI
   Environmental Planning and Protection
   Federal Ministry of Works, Housing and Environment
   LAGOS, NIGERIA.

5. Mr. Ole LARSEN
   Kymervej 14
   DK 4140 BORUP, DENMARK.

6. Dr. Banku B. GANGULY
   Professor and Head of
   Department in Science and Mathematics
   National Council of education research and Training
   Sri Aurobinda Marg
   NEW DELHI - 110006, INDIA.

OBSERVERS

1. Dr. Hussein Bashir MAHMOUD
   Director of the National centre for Education Research
   El Falaki Street
   CAIRO, EGYPT.

2. Dr. Adly Kamel FARAG
   Ex. Environmental Education expert in ALECSO
   3, Zagloul Street, Daher,
   CAIRO, EGYPT.

3. Dr. Mohsen TAWFIK
   Dean, Institute of Environmental Studies and Research
   Ain Shams University,
   Abbassia,
   CAIRO, EGYPT.

4. Dr. Talaat MANSOUR
Chairman of Mental Health Department
Faculty of Education
Ain Shams University
CAIRO, EGYPT.

5. Dr. William EBEID
Vice Dean
Faculty of Education
Ain Shams University
CAIRO, EGYPT.

6. Dr. Amin E. DOWIDAR
Chairman of the Biology and Geology Department,
Faculty of Education
Ain Shams University
CAIRO, EGYPT.

7. Dr. Said Mohammed Mohammed EL-SAID
Curriculum Department
Faculty of Education
Ain Shams University
CAIRO, EGYPT.

8. Dr. Magdi M. SIKHA
Faculty of Education
Ain Shams University
CAIRO, EGYPT.

9. Dr. Sabri Al Demerdash IBRAHIM
Faculty of Education
Ain Shams University
CAIRO, EGYPT.

10. Dr. Farea Hassan MOHAMMED
(Methods of teaching Geography)
Faculty of Education
Ain Shams University
CAIRO, EGYPT.

11. Dr. Zeinab EL NAGGAR
Curriculum Department
Faculty of Education
Ain Shams University
CAIRO, EGYPT.

12. Dr. Fikry M. EBEID
Chem. Department
Faculty of Education
Ain Shams University
CAIRO, EGYPT.

13. Dr. Mona ABOUSENNA
Dept. of Foreign Languages,
Faculty of education
Ain Shams University
CAIRO, EGYPT.

ORGANIZING COMMITTEE

1. Prof. Ali Labib IBRAHIM, Chairman
2. Prof. M. Saber SELIM
3. Prof. William EBEID
4. Dr. Adly Kamel FARAG

UNESCO

Dr. Abdul Ghafoor GHAZNAWI
Programme Specialist in Environmental Education
Division of Science, technical and environmental Education
UNESCO,
7, Place Fontenoy,
75007 PARIS.

APPENDIX 3.
OPENING & CLOSING SPEECHES

APPENDIX 3-A

OPENING ADDRESS

Dr. Ali Labib Ibrahim
Chairman, Conference Organizing Committee
Dean, Faculty of Education, Ain Shams University

- Your Excellency the Minister of Education, Dr. Fathi Sorour,
- President of Ain Shams University,
- Vice President of Ain Shams University,
- Distinguished representative of UNESCO, Dr. Abdul Ghafoor Ghaznawi,
- Honoured guests and Conference participants from Czechoslovakia, Egypt, Denmark, India, Jordan and Nigeria.
- Guests and representatives of Egyptian government and Non-government Agencies with environmental interests.
- Ladies and Gentlemen.

On behalf of the Organizing Committee of this Conference, I would like to welcome you all to the campus of the faculty of Education, Ain Shams University, and to extend a warm welcome to our overseas guests, whose stay in Egypt will I hope be both pleasant and memorable.

I would like to express our sincere thanks to UNESCO for sponsoring this international gathering, and to Dr. Abdul Ghafoor Ghaznawi personally for the interest he has taken, and the help he has offered us. I had the honour to meet Dr. Abdul Ghafoor Ghaznawi in Singapore in March 1986, where we attended a Consultative Meeting on the Incorporation of Environmental Education into Technical and Vocational Education. I need scarecely tell you that Dr. Abdul Ghafoor Ghaznawi is an international figure in environmental education, and a resourceful and imaginative educator. I am sure we have much to gain from his presence at this conference.

Our thanks also go to the individual participants who have taken the trouble to supply the conference with reports on environmental education in their own countries, and to UNESCO for presenting to us our main working document, the Guidelines for Development Non-formal Environmental Education. I wish to thank the President of Ain Shams University and fellow members of the Organizing Committee for the facilities made available to us at the Faculty of Education: and finally, the Egyptian National Commission for UNESCO, and Dr. Kamal Saad, UNESCO representative for Egypt and Sudan, for the assistance of thier organizations.

I am sure that our discussions will be both enjoyable and fruitful, and I look forward to some lively sessions during the coming week. The fact that this conference is being held at the Faculty of Education of Ain Shams University is not without significance :

First, the Faculty of Education is the oldest and largest institution of its kind in the Middle East;, with over one hundred years of service to education, and with graduates spread throughout Egypt and the Middle East, it is regarded as the mother institution among Faculties of Education in the region.

Second, Government and Non-government Organizations in Egypt are equally active in the area of non-formal education, and some interesting work has been accomplished here.

Thirdly, Egypt is simultaneously an Arab, a Middle-Eastern and an Afro-Asian country, occupying a pivotal position in the region and reflecting in its own concerns, environmental issues that are emerging in the region as a whole.

Here in Egypt we are looking at such problems as industrial pollution of air and water, organic and chemical pollution of water and soils, and the increasing potential for radioactive pollution. There is a perilous balance to be maintained between a rapidly growing population and an ever more strained agricultural output. In this connection, we confront the problems of urban encroachment on traditional arable lands, of the threat of desertification in some areas and the battle for desert reclamation in others, with all this implies by way of public and private investment, and of engineering, agronomic and social difficulties to be overcome. These are, you will agree, key concerns we share with both industrialized and developing nations.

Education should play a crucial role in broaching these problems, since most remedies depend on perception and understanding of these problems by the population as a whole : initiatives in environmental control are doomed if they are not matched by public will, and accompanied by social and behavioural change.

I would like to stress that formal and non-formal education are complementary in this effort. Formal environmental education will, we trust, have an enduring effect on the rising generation, but it is nonetheless a long-term effect.

Non-formal environmental education should be the means to reach the present generation, those who are beyond or outside the influence of the education system, those whose patterns of life and work affect the environment now, those whose decisions and actions in public life will determine the environment that the rising generation will inherit. We must therefore consider the full range of educational strategies open to us, and ask ourselves what opportunities

they offer, what sectors of the nation they will reach, and hence what measures (materials, media, patterns of instruction) will be appropriate in each case.

May I end by saying that if for whatever reason the facilities we have tried to provide are not to your satisfaction, please do not hesitate to let us know, and we will do all we can to assist. We will squeeze as many visits into the programme as we can, so that our visitors will have at least a glimpse of Egypt before they depart.

Once again, I thank you all.

APPENDIX 3-B

WELCOMING SPEECH

Dr. Fawzy El Sha'arawi
Vice-President
Ain Shams University, Cairo

- Your Excellency, The Minister of Education, Dr. Fathi Sorour,
- Dean of the Education Faculty, Dr. Ali Labib Ibrahim, and Members of the Conference Organizing Committee,
- Distinguished Representative of UNESCO, Dr. Abdul Ghafoor Ghaznawi,
- Honoured Guests and Conference Participants,
- Guests and Representatives of Egyptian Agencies attending this Conference,
- Ladies and Gentlemen

May I welcome you all to Ain Shams University, and on your behalf extend a special welcome to our distinguished International visitors, to whom I wish an enjoyable, if all too short, stay in Egypt.

You have come together to consider approaches to environmental education, and this must be a matter of paramount concern, since the world in which we live is our greatest heritage, and the way any one group of individuals treats it will affect the fortunes of us all. Though it is a disturbing thought, I must say that Egypt is an appropriate place for such a gathering, for we face here a broad spectrum of environmental problems, and have much to learn from your deliberations. I hope that, as one of the leading educational institutions in the country, Ain Shams University will come to play its part in alerting our younger generation to the responsibility they bear for their own surroundings and for their own quality of life.

However, I fully appreciate the concern of this Conference with non-formal education, and the need to reach out beyond the education system to the nation at large.

The locality of Ain Shams (literally, "The well of the sun") is certainly a good place to pause and consider the environment. Not two kilometers from this campus lies the site of ancient "On", later called "Heliopolis", city of the sun and one of the world's oldest religious and intellectual centres. The locality also symbolizes man's struggle since earliest times to tame and improve his environment. For tradition has it that Yousef (Joseph), who organized food storage for the Pharoh during the seven years of great famine, was the son-in-law of Potiphera, High Priest of "On". And a few kilometers beyond present day Ain Shams we find the ancient canal systems between the Nile and the Bitter Lakes, one of the earliest feats of irrigation

engineering. I do hope our visitors will have an opportunity to see something of Egypt's cultural heritage before they leave.

Ain Shams University is proud to continue the intellectual tradition of the locality, including the environmental aspect, with Faculties of Agriculture, Engineering, Science, and an Institute for Environmental Research. But our 110,000 students are also distributed in Faculties of Medicine, Law, Commerce, Humanities, Modern Languages, and a special Faculty for Women. Last but not least there is the Faculty of Education where we are now gathered, with over 10,000 students, departments for all the main subjects of the curriculum, and a range of educational departments. I would draw your attention to its large and vigorous postgraduate programmes, designed to provide higher levels of education and training for the teaching profession. For one of the first steps toward environmental education must surely be to educate the educators, and initiate a "top-down" process in the education system.

I thank you all for coming here today, and wish you a fruitful week of discussion and planning.

APPENDIX 3-C

Statement for the Opening Session of the International Consultation Meeting on Developing Non-formal Environmental education
26 September - 1 October 1987, Cairo, Egypt.

By

Dr. Abdul Ghafoor Ghaznawi, Programme Specialist
in Environmental Education, Division of science,
Technical and Environmental Education
Unesco, PARIS.

- Your Excellency, Professor Fathi Sorour, Minister of Education;
- Professor Fawsy El Sha'arawi, Vice President of Ain Shams University;
- Professor Ali Labib Ibrahim, Dean, Faculty of Education;

Ladies and Gentlemen,

It is an honour and a pleasure for me to welcome you on behalf of Unesco to the International Consultation Meeting on Developing Non-formal Environmental Education. The consultation meeting is conceived in the context of Unesco's Programme and Budget for 1986-1987 (23 C/5 para 10973). This meeting is organized by the Faculty of Education of Ain Shams University in cooperation with UNESCO-UNEP International Environmental Education Programme (IEEP)

The objective of the meeting is to make a brainstorm on the different aspects of developing non-formal environmental education, in particular (i) to examine the concept, importance, priority needs, and target groups for non-formal EE; (ii) to establish a process for developing non-formal education; (iii) to identify major environmental issues and problems to be treated by non-formal EE; (iv) to establish guidelines for developing methods, materials, training of personnel, evaluation, legislation, administration and financing and coordination mechanisms for non-formal EE; (v) to promote exchange of information and experience in the development of non-formal EE.

Inputs to this meeting include (i) presentation of country reports from Egypt, Jordan and Nigeria; (ii) presentation on the activities of Unesco-UNEP International Environmental Education Programme; (3) presentation and discussion of the documents entitled (a) Guidelines for the Development of Non-formal Environmental Education, (b) The Concept, Importance, Needs and Priorities, and target groups of Non-formal Environmental Education, (c) A Process for Developing Non-formal Environmental Education; (d) Major Environmental Issues and Problems to be Treated by Non-formal Environmental Education, and (e) Methods,

Materials, Training of Personnel, Evaluation, Legislation, Administration, Financing and Coordination Mechanisms in Non-formal Environmental Education.

The immediate output of the meeting will be a final report as a substantive document. The final report will reflect the innovative ideas, strategies and guidelines that would evolve during the presentations and discussions as well as the resume of the papers that have been prepared by the participants. Furthermore, the experiences gained and major ideas generated as outputs from this meeting shall serve as a part of inputs to regional, subregional and national training seminars on non-formal environmental education.

Ladies and Gentlemen,

Environment means different things to different people. Some consider it the sum total of all the factors that affect an organism. In the Intergovernmental Conference on Environmental Education held by Unesco in cooperation with UNEP in Tbilisi, in 1977 it was highlighted that while the "biological and physical features constitute the natural basis of the human environment, its ethical, social, cultural and economic dimensions also play their part in determining the lines of approach and the instruments whereby people may understand and make better use of natural resources in satisfying their needs." Thus, environment should be considered with its holistic nature when developing formal and non-formal environmental education.

Environmental problems are among the realities of contemporary civilization. Developed as well as developing countries are faced with environmental problems with local, national, subregional, regional and global characteristics. Environmental problems may also be grouped as natural and man-made which include deforestation, desertification, soil erosion, floods, carbondioxide increase and ozone decrease in the atmosphere, extinction of species, technological and industrial accidents, resource depletion, waste disposal, urbanization leading to shortage of essential facilities and amenities in the urban areas and to shortage of agriculture production and to degradation of rural life, etc. Poverty is also a major factor of environmental degradation and its associated problems. Environmental problems are in general of our own making and they are on the increase if not curbed.

Environmental Education as an integral part of educational process is the measure through which its target groups are provided with opportunities to have the awareness, knowledge, skills, attitudes, commitments, actions and ethical responsibilities for the protection and improvement of the environment and its quality and for the prevention and solution of environmental problems. Change of behaviour and attitudes leading to commitments, actions and ethical responsibilities concerning the environment especially in the adult population takes time and needs to be approached

through different methods and by coordinated efforts of the media and the press, rural development, adult education and other similar nonformal education projects. For achieving the above, it requires to have trained skilled personnel on environmental matters, teaching materials and appropriate methodologies for presentation to the general public. This is a major reason for having this meeting and inviting experienced experts to advise Unesco on developing nonformal environmental education.

Ladies and Gentlemen,

On behalf of Unesco I should like to express my thanks and gratitude to the Government of Egypt for facilitating the organization of the meeting in Egypt, to the Egyptian National Commission for Unesco for signing the contract of this meeting, to the President of Ain Shams University for having the meeting organized by the Faculty of Education, to Professor Ali Labib Ibrahim, Dean, Faculty of Education and his organizing committee for looking after the different aspects of the preparations and organizations of the meeting.

On behalf of Unesco I want to thank the Member States who have accepted the invitation and have sent their respective participants to this meeting. Last but not the least, I want to thank the participants who have come to this meeting and have worked for many days in preparing the requested country report or paper for this meeting. I should add that the Unesco Office in Cairo and UNEDBAS in Jordan have helped in liaisoning certain aspects of the preparations of the meeting and I express my sincere thanks to Dr. Kazim, Director, UNEDBAS and Dr. Kamal Saad of UNESCO Office in Cairo for their help and cooperation.

Unesco hopes that this meeting could come out with practical strategies and guidelines that could facilitate the development of nonformal environmental education by Member States for the protection and improvement of the environment for the present and future generations.

APPENDIX 3-D

Statement for Closing Session by
Dr. Abdul Ghafoor Ghaznawi,
UNESCO, PARIS.

- Professor Ali Labib Ibrahim, Dean, Faculty of Education, Ain Shams University.
- Professor Saber Selim, Chairman of the Meeting,
- Ladies and Gentlemen,

It is time to conclude and close the International Consultation Meeting on Developing Non-formal Environmental Education organized by Faculty of Education of Ain Shams University in cooperation with UNESCO-UNEP International Environmental Education Programme (IEEP) from 26 September to 1 October, 1987, in the socio-culturally rich environment of Cairo.

The objective of the meeting was to have a brainstorm over the different aspects of the development of nonformal environmental education namely: the environment; environmental education; the goals and objectives of environmental education; concept target groups of nonformal environmental education; a process for developing nonformal environmental education; methods; materials; training of personnel; legislation; administration; financing; coordination; exchange of information. The meeting was also to suggest activities and documents to be developed by IEEP at subregional, regional and international levels.

For achieving the above objective, five documents and three countryreports were presented and discussed and two days of brainstorming were put into session by the Chairman of the meeting. The immediate outcome of the meeting at present is a final report drafted here during the meeting which reflects some of the elements of the working documents and country reports and thoughts and deliberations of the participants and observers of the meeting. As suggested by the meeting the draft final report will be revised and edited with further inputs from your papers and country reports towards a final draft for reproduction and dissemination to professionals and institutions active in the field of environmental education.

I am positively sure that the meeting does not get ended in preparation and dissemination of its final report. The contact and exchange of experience and information that have taken place among the participants as experts with high responsibilities in their respective countries, I hope could lead to further contacts and consultations and to undertaking of new activities in this field. We in UNESCO shall study carefully your suggestions concerning activities and documents to be developed by IEEP and take needed actions in that context.

Education takes time. It is a lifelong process. It holds true especially in the case of developing a new dimension of education such as nonformal environmental education. Thus, the thoughts, strategies and guidelines generated and deliberations

made during this meeting will go a long way towards facilitating the development of nonformal environmental education for developing environmentally literate citizens.

I am well acquainted with the intensive work required for preparation and organization of such meetings. Please join me in congratulating Dr. Ali Labib Ibrahim, Dean, Faculty of Education and his organizing team as well as the many services of the Faculty, whose hard work has led to the success of the meeting. I would also want you to join me once again in congratulating Dr. Ali Labib Ibrahim for his re-election as Dean of the Faculty of Education for the second term, which took place during this meeting.

On behalf of UNESCO I thank His Excellency Dr. Fathi Sorour, Minister of Education of Egypt for having the meeting opened, and the President and Vice-President of Ain Shams University and the Dean of the Faculty of Education for rendering all the needed services and providing all the required facilities for the meting. Please join me in thanking Dr. Ali Labib Ibrahim for his generous hospitality which I appreciate as one of the noble elements of Egyptian culture.

I want to thank Professor Saber Selim for his leadership as Chairman, Dr. Danuse Kvasnickova as Vice-Chairman and Mr. Mustapha Shekoni as Rapporteur and the members of the Steering Committee for their efforts that have led the meeting to a successful end.

APPENDIX 3-E

Closing Speech
by Dr. Ali Labib Ibrahim
Dean, Ain Shams Faculty of Education

As our meetings are drawing to a close, allow me to extend my thanks to you all for the interest you have already shown by participating in this International Consultation Meeting on Developing Nonformal Environmental Education. I have no hesitation to say that we have all benefitted from the fruitful deliberations that have taken place during this week. Let us all hope that this meeting in Cairo would lead to further follow-up meetings here and elsewhere so that the issue of nonformal environmental education be tackled systematically and comprehensively.

I would like to point out that this consultation meeting has drawn a number of observers who are highly interested, though not specialists, in the field of nonformal environmental education. I am sure that their presence and the exchange of ideas that took place would trigger some projects in their respective specialisations that eventually would highten the awareness of environmental problems. To my mind, this exchange of ideas is one of the many achievements of this meeting.

I hope that we were able, amidst the tight programme, to provide enough opportunities for our guests to go to some places of interest in Cairo, and to get acquainted with some aspects of the Egyptian "Social Environment."

I would like to seize this opportunity to extend my special thanks to UNESCO and to Dr. Abdul Ghafoor Ghaznawi, in particular, for helping us to successfully hold this consultation meeting in Cairo. My thanks also go to all participants and to the members of the organizing committee who spared no effort in making this event possible.

Finally, I would like to express my pleasure at having the honour and privilege of bringing together this group of distinguished specialists and scholars to hold this consultation meeting at Ain Shams Faculty of Education.

Thank you again and have a safe trip home, or as we say in Arabic : Ma Assalama.

APPENDIX 4

Presentation on UNESCO-UNEP International Environmental Education Programme (IEEP)

by

Dr. Abdul Ghafoor Ghaznawi
Programme Specialist in Environmental Education
UNESCO, PARIS.

I. Recognition of Environmental Education as a Measure for Protection and Improvement of the Environment

In 1972 it was realized that environmental problems were on the increase and that they could have a deep impact on man-environment relationship. This was elaborated at the United Nations Conference on Human Environment in Stockholm in Sweden. It was in this Conference that environmental education was recognized as a measure for the prevention and solution of environmental problems and this was expressed in its Recommendation 96.

II. UNESCO-UNEP IEEP

It was in 1975 that UNESCO in cooperation with UNEP launched the International Environmental Education Programme (IEEP) on the basis of Recommendation 96 of the Stockholm Conference on Human Environment.

1. Objectives

The general objective of IEEP is to promote implementation of the Recommendations of the Tbilisi Intergovernmental Conference on Environmental Education (1977) through encouraging and assisting governments, national, regional, and international institutions to incorporate environmental education into formal and nonformal education systems and programmes in order to (i) make people aware of the nature of the relationship between man and the environment on which he depends; (ii) impart knowledge and skills to understand and solve environment and development related problems; and (iii) enable people to acquire attitudes and motivations leading to sound decisions and actions for the protection and improvement of the environment and its quality.

In this context, the emphasis of IEEP's current activities is on (i) the incorporation of environmental education into teaching/learning processes at primary and secondary schools, pre-service and in-service teacher education, university general education, technical and vocational education and nonformal education; (ii) local adaptation and use of environmental education materials developed under IEEP; and (iii) fostering international cooperation in this field.

2. Activities

a) The Belgrade International Workshop on environmental Education

The Belgrade International Workshop was organized in 1975 which led to the preparation and announcement of the Belgrade Charter on Environmental Education.

b) First Intergovernmental Conference on Environmental Education

It was in 1977 that the first Intergovernment Conference on Environmental Education was organized by UNESCO in cooperation with UNEP in Tbilisi, USSR. This Conference produced a Declaration and 41 Recommendations reflecting environmental education goals, objectives, guiding principles and strategies for environmental education development within different types and levels of education. A concrete outcome which could be considered a landmark in the development of environmental education in the 1970s was the formulation of environmental education goals, objectives and guiding principles at the Tbilisi Conference which has served as a common ground for almost all international undertakings and most national activities in environmental education.

c) Exchange of Information

Exchange of information has been enhanced through the publication of the quarterly newsletter Connect in five languages and disseminated to about 13,000 professionals and institutions, and through the dissemination of directories on institutions and environmental education programmes, glossary of environmental education terms, numerous reports of environmental education meetings organized under IEEP, copies of environmental education documents prepared in the Environmental Education Series to interested institutions and professionals and to participants of al meetings organized under IEEP. Furthermore, in all training workshops and seminars organized under IEEP participants have been requested to prepare and present country reports, as done in this meeting, on the development of environmental education in their respective countries. Resumes of these country reports are reflected in CONNECT for informing a wider audience on the development of environmental education in the participating Member States.

d) Development of Environmental Education Goals, Objectives, Guiding Principles and Concepts

IEEP has fostered the development of environmental education goals, objectives, guiding principles and concepts through the preparation and organization of an International Workshop on Environmental Education in 1975 in Belgrade, Regional Expert Meetings in Africa, Asia, Latin America and the Caribbean, Arab States and Europe during 1976-1977, and the Intergovernmental Conference in Environmental Education, Tbilisi, USSR, October 1977.

Under the umbrella of the Environmental Education goals, objectives and guiding principles, strategies for curriculum development and teacher training, guidelines for developing nonformal environmental education, process for pre-service teacher training, sourcebooks for formal and nonformal environmental education, 22 documents under the Environmental Education Series have been developed. These have led to the development of environmental education concepts, methods, materials and evaluation.

e) Research and Experimentation

IEEP's research and experimentation activities have involved an international survey of environmental education needs and priorities; surveys on curriculum development and teacher training in environmental education, survey and studies on the incorporation of environmental education into university general education. Similarly, IEEP has supported 36 pilot, experimental and research projects in formal and nonformal environmental education as well as technical and vocational education and higher education.

f) Training of Educational Personnel in Environmental Education

IEEP's training activities in environmental education at international, regional, subregional and national levels have focused on key personnel such as curriculum developers, teacher educators, educational planners, educational administrators and supervisors as well as on personnel in rural development and adult education projects for the purpose of their orientation for a better understanding of the philosophy, goals and objectives of environmental education development for primary and secondary schools, for pre-service and in-service teachers training and for its incorporation into nonformal education.

It is in this context that IEEP has organized one international training course, 5 regional and 9 sub-regional training seminars as well as 50 national training workshops in the Arab States, Asia, Africa, Latin America and the Caribbean, and Europe. IEEP has also prepared the documents on Strategies for Teacher Training and Curriculum Development in Environmental Education and the six teacher training modules in collaboration with teams of educators from School of Education of the University of West Indies in Jamaica and from the Curriculum Department of the Ministry of Education in Jamaica; Science Centre of the University of the Philippines; Faculty of Education of Monash University and the South Australian College of Advanced Education, Australia; National Council of Educational Research and Training, New Delhi, India, and Kenya Science Teachers College, Nairobi, Kenya. All of IEEP training activities have taken place in institutions which possess potentialities and promises to serve in the long run as centres of excellence in environmental education. The selection of such institutions is based on their previous activities and commitments in the development of environmental education. In the final analysis, the preparation and organization of training activities provide opportunities for the

development of institutional and professional responsibilities and competencies in the development of environmental education. It is envisaged that such committed educational institutions may become centres of excellence for training and curriculum development in formal and nonformal environmental education.

g) International Cooperation

Most of the activities implemented by IEEP have an international cooperation dimension. Specifically, international cooperation has been enhanced through fielding advisory missions concerning environmental education training activities, curriculum development and pilot projects and by the provision of technical and financial support to numerous environmental education regional and international meetings and conferences organized by governmental and non-governmental organizations.

h) International Congress on Environmental Education and Training

The International Congress on Environmental Education and Training was organized by UNESCO and UNEP from 17-21 August 1987 in Moscow, USSR. The programme of the Congress included a review of progress and trends in environmental education since the Tbilisi Conference; the state of the environment and its educational and training implications; relations between inter-governmental environmental-scientific programmes and environmental education and training; presentation of a draft international strategy for environmental education and training through the 1990s.

Three commissions considered respectively: (1) environmental education and training of teaching personnel for school and out-of-school activities and priorities for their development in the 1990s; (2) environmental education and training in general university education and priorities for their development in the 1990s; and (3) specialized environmental training and priorities for its development in the 1990s. One of the most important results was the examination of an International Strategy for Environmental Education and Training in the 1990s.

Five symposiums considered respectively; (1) international understanding and environmental problems - the role of environmental education; (2) environmental education and training - their contribution with perspect to sustainable socio-economic development; (3) the role of the media and new communication systems in the promotion of environmental education and information; (4) the role of biosphere reserves and other protected areas in the dissemination of ecological knowledge and the training of ecological specialists; and (5) national experiences and the contribution of non-governmental organizations in the development of environmental education and training - progress and trends; thereby giving participants an opportunity to share national developments and achievements in environmental education at all levels.

i) Towards the Future

The future trends for the activities of IEEP is highlighted on page 39 of document ED-87/Conf.402/6 as the following:

Environmental Education by its very nature is based on concern for the future and confidence in an informed people conserving and improving their environment. Environmental quality, so essential in the quality of life itself, consistently ranks high as a priority in the opinion of expert and public alike.

The International environmental Education Programme, consequently, will continue to develop the activities described and extend them according to the Action Plan for Environmental Education and Training in the 1990s, as established by the International Congress on Environmental Education and Training, held in Moscow, USSR, August 1987. Thus future activities of the IEEP will aim at:

- improving understanding and knowledge of the laws and principles governing the operation of ecosystems and the relationship between societies and nature;

- heightening awareness of the causes of environmental problems and their impact on individuals, societies and the international community;

- furthering values, attitudes and forms of behaviour which will contribute to the protection of the environment and improvement of its quality;

- encouraging the development of relevant and effective general and specialized education, both in-school and out-of-school in national educational policies, plans and programmes, with view to preservation and amelioration of the environment;

- incorporating and promoting this form of education in programmes of higher education and intermediate-level technical and vocational education;

- developing awareness among various professional groups (engineers, jurists, economists, urbanists, etc.) of environmental problems and their solutions; and preparing teaching materials relevant to these professionals.

APPENDIX 5 Resumé of Documents

APPENDIX 5-A

Resumé of Guidelines for the Development of Nonformal Environmental Education (EE No. 23)

.Summary and Presentation by
Dr. Abdul Ghafoor Ghaznawi,
UNESCO, PARIS.

Background

The environmentalization of formal and nonformal education brings relevance to teaching/learning at all levels and types of education. Nonformal environmental education with its wide scope and large target audience is a fertile and promising field for fulfilling the purpose of inculcating awareness, knowledge, skills, commitments and actions on the part of individuals and groups in the general public for the protection and improvement of the environment and its quality for the present and future generations.

The development of nonformal environmental education requires the incorporation of environmental education objectives, concepts, teaching methods and evaluation techniques in the appropriate places in the processes of the development nonformal education. In order to facilitate the development of nonformal environmental education, it has been considered essential to develop some guidelines for this purpose.

The document entitled Guidelines for the Development of Nonformal Environmental Education which is summarized here is intended to fulfill the above purpose. This document has been prepared by UNESCO-UNEP International Environmental Education Programme (IEEP) with the collaboration of Dr. A.J. Young and Dr. M.J. McElhone of the Gwent College of Higher Education, Gwent, Wales, United Kingdom.

Contents

The content of this document focuses on the concept of environmental education (EE), environmental problems and their solutions, methods, materials, training of personnel and evaluation in nonformal environmental education. The document further highlights environmental ethics as well as coordination and legislation in nonformal environmental education.

The Needs, Strength and Problems

The need for environmental education is illustrated by the presence of environmental problems such as population pressures, high energy consumption, resource depletion, pollution, ecosystem degradation and fast urbanization. These problems are altering man's exploitative attitude towards the environment. Nonformal environmental education is considered a measure to serve towards changing the attitudes of the general public towards the solution and prevention of environmental problems. It is pointed out that

the strength of nonformal environmental education lies in the fact that it does not operate within a given set of rules with a strict structure, curriculum and examination procedures. Nonformal environmental education, theoretically at least, is more capable of responding to local environmental issues which have more social meaning and usefulness to community and is less dominated by academic requirements.

One of the major problems envisaged concerning the effective implementation of nonformal environmental education is the diversity of the target groups and their needs. Other problems include the lack of finance and structure through which environmental education concepts can be developed.

For effective development of nonformal environmental education needed elements are appropriate teaching/learning materials, suitable methods, qualified teaching personnel, evaluation techniques, financial resources, administrative infrastructure, and legislation as a mandate for the development and provision of this type of education for its target groups.

Objectives

Environmental education objectives formulated at Belgrade Workshop and Tbilisi Conference are referred to serve the formal and nonformal environmental education with respect to awareness, knowledge, attitudes, skills, evaluation ability and participation.

For achieving environmental education objectives it is suggested to develop an educational strategy that is prepared to challenge existing economic principles and practice, which questions traditional social and political goals and also critically examines the personal ethics that are considered the norms of many societies. For achieving this, environmental education must be considered as a lifelong process and consequently nonformal environmental education is considered of utmost importance in creating a society whose citizens are knowledgeable enough to make a valid contribution to the decision making process.

Environmental Problems and Their Resolution

Environmental problems emphasized are population, energy, resource depletion, pollution, deforestation, desertification, extinction of species, ecosystem degradation and urban explosion.

Community participation in the decision making process concerning the environment is emphasized for resolving environmental problems. The role of pressure groups in certain countries for resolving environmental problems has been referred to. The development of alternative technology, use of solar energy etc. are mentioned as possible means of resolution.

Methods, Materials, Training of Personnel and Evaluation

Methods used in certain countries have been mentioned to include radio and TV broadcasts on ecology, production and dissemination of materials, out-of-school activities such as tree planting programmes, use of nature camps and environmental research centres, use of museums, regular series of lectures to youth and women organizations, projects for using the labour of young unemployed. It is pointed out that much research has not been done on evaluating the impact of the different methods on the target groups in improving their environment.

Among teaching methods such as lecture, discussion drama/popular theatre, etc. mentioned, problem solving approach with participatory requirement has been emphasized most suitable in formal and nonformal environmental education.

Training of personnel is emphasized to be based on the needs of the target groups whose diversity makes training quite complex. Training competencies needed for teachers in formal environmental education has been considered essential in nonformal environmental education training as well. These competencies should be developed in ecological foundation, general awareness, investigation and evaluation and environmental education action skills. Three units suggested to be considered in training are as follows: Unit 1: Man and the environment; Unit 2: The aims and methodology of nonformal environmental education; Unit 3: The political dimension of environmental education.

Evaluation is considered assessment of the worth of educational phenomena and essential in nonformal environmental education and may be used in the design of the project or programme; the cognitive, affective and skills aspects of the goals to be achieved by participants; the financial, cultural and political conditions for its feasibility; the acceptability of content to learners, teachers and organizers; methodologies used by teacher/group leader; the teaching/learning materials; the recruitment and training of the teachers/group leaders; and effectiveness of the programmes in preventing/reducing environmental abuse.

APPENDIX 5 - B

Summary of Denmark's Report on the Concept, Importance, Needs and Priorities, and Target groups on Non-formal EE By Mr. Ole Larsen, Denmark.

Statistics on mortality and illness for the Danish population from 1900 - 1982 show that health was at its highest point around 1950, when proper nutrition, good hygiene and medicine had all helped to combat the diseases of poverty. After that time, disorders like cancer, allergies, heart and circulatory diseases increased in pace with growing pollution and the lifestyle that is characteristic of industrial cultures. New methods of measurement are able to show that the pollution of the biosphere ends in the human body by means of the food chains and there causes disease. Consequently, environmental and health problems are one and the same thing, which is the background for the holistic environmental model where the interaction between the earth's ecology and the body's can be described and defined as follows: The concept of environment can hereafter be defined as the space around the earth which influences living organisms. The human body is equal to "the inner environment" and "the outer environment" is the whole biosphere, which can be divided into many layers, so that we can speak of housing and family environment, work environment, leisure environment, food production environment and nature. The human body is a biotope. With the individual cells and bacteria, etc., together constituting an environment. The outer environment supplies energy and receives waste products. Foor intake provides the strongest influence from the outer environment. Harmful environmental wastes in food become part of human ecology by changing chemical processes. This creates disease and burdens the nervous system (stress). The holistic view of mankind considers man from three angles: chemical, body type, and psychological. Each of these aspects influences the other, and so in terms of health, we should look at every disorder from three angles. For example, if the chemistry of the inner environment is changed, this also leads to changes in the structure and the psyche.

In order to understand the route followed by harmful toxins from the food chain to the human body, it is vital to teach people at all educational levels about types of food chains and the course of wastes through them. More light should be shed on the difference between ecological food production and the chemically oriented agro industry, and the balance between a diet of vegetables and meat should be degated.

The European region of WHO has developed a strategy that should improve health conditions up to the year 2000. The goals and activities of this strategy are also non-formal environmental education and an excellent attempt to limit the sharply rising costs of the health sector. The most important part of the strategy is that we should learn to take responsibility for our own health by making the right life choices. Unfortunately, human beings do not do this instinctively as animals do, but we have a new method from California, applied kinesiology, which indicates whether a food is toxic by means of a muscle test. When food is placed on the tongue, the peel of a cucumber, for instance, a chemical analysis takes place. This is then processed by the

brain, which functions as a computer that has registered all the substances to which we have previously been exposed and the body's reaction to them. If the cucumber is harmful, muscle strength falls by 2/3, which can be measured with a kinesiometer or by another person testing the muscular reaction. A cucumber that has been sprayed almost always caused a loss of strength, especially when the point of intolerance behind the ear is touched. When the body reacts so violently, it is because the mere presence of a toxic substance brings the body's inner pollution visible.

When we recognize the interplay of the holistic model, we will be in a position to improve the environment, because it does not just concern nature alone, but ourselves as well. As environmental problems and health problems can be viewed as one and the same thing, workers from both fields ought to follow a common strategy.

The different layers in the outer environment should be the subject of different types of environmental education, with an emphasis on the local environment for children and young people. "The living green city" is an example of the social and ecological considerations that should be taken in city planning. Plans of ecological houses and cities make the strategy concrete and help to build a model society that can inspire new ecological ways of living through non-formal activities. Some of these models could be constructed in connection with existing school buildings.

In this report, different case histories of different grassroots movements are mentioned, and then followed by an analysis of the strategy used by these movements, which is intended to serve as inspiration for the non-formal educational system. Greenpeace is singled out as an organization that makes environmental problems visible and works actively to solve them.

The processes leading from action to knowledge and from knowledge to action are discussed, and the typical course of action for non-formal education is described as follows: a) localize an environmental problem, b) concretize and decide options for action, c) cooperate at grassroots level, and d) politicize through newspaper articles, exhibits, radio and video.

The relationship between local environmental and resource problems and those on a global level is also discussed through examples so as to provide an explanation for various problems such as drought, flooding and deforestration of rain forests.

The nature guides and lumbar support projects are described in the section "Target Groups". On the background that 51% of all Danes have back problems, the latter projects concerns the relationship between illness and lifestyle. The healing and preventive horseman's posture provides new sitting positions that give an even pressure on the discus.

The development of environmental awareness is described historically, starting with the litter stage, the filter stage, and then the ecology stage, where the processes of nature become the model for industrial production. This leads to an entirely new form of consumer policy where we would initiate production only if it were compatible with the cycle of nature, and where taxes on pollution would have an ecological effect on production.

Ecology would provide the inspiration not only for production systems, but also for an ethic built on responsibility and insight into the laws of nature.

APPENDIX 5 - C

Resumé of A Process for Developing Nonformal Environmental Education
by Professor M. Saber Selim,
Ain Shams University, Egypt.

Man is an integral part of the environment and environmental education should be intended to guide new patterns of behaviour between man and his environment. It is to develop environmental literacy to safeguard humanity at peace with itself in an improved environment for the use of present and future generations.

- Formal and nonformal environmental education programmes are overlapping, they have common goals and objectives and guiding principles, and deal with almost the same problems.

- Target group for nonformal programmes are larger in population, varied in abilities, and scattered everywhere.

- Developing successful nonformal environmental education programmes needs rich information about problems of the environment, competent developers, and excellent executors.

- Nonformal environmental education programmes can be carried out through single medium, or multi-media depending upon the nature of the problem, and availability of effective media.

- Training of personnel is of utmost importance for the success of the programmes.

- Although evaluation is an integral part of any programme, yet evaluating nonformal environmental education programmes is not an easy job. Efforts are needed to develop techniques and tools to evaluate the effectiveness of such programmes.

- Programmes may be adopted, adapted or constructed from the very beginning. Each approach has its own merits and needs further exploration.

- A programme has to be tried on a small sample before implementation and dissemination.

Recommendations

To plan for effective nonformal environmental education programmes, the following are some recommendations:

- The availability of resource materials is basic for the development of successful programmes. This should be achieved through international, regional, and national efforts.

- For quick and effective dissemination of information, experiences, and techniques in nonformal environmental education, it is suggested to have central clearing houses, attached to national centres to spread it on a wide scale.

- Institutions responsible for training of personnel in the field of environmental education need to cooperate in planning and adopting strategies, and developing programmes for training. This may be achieved through international, regional, sub-regional institutions like universities, mass media, and professional organizations.

- Inspite of the importance of evaluation for nonformal environmental education, yet there is shortage of evaluative instruments to measure all the objectives. It is suggested to help construct such instruments and train the personnel to use it.

APPENDIX 5 - D

Resumé of Major Environmental Issues and Problems To Be Approved Through Nonformal Environmental Education (NEE)

by Dr. Danuse Kvasnickova, Czechoslovakia

For the tasks, goals, conception, content, methods and means of NEE we must clarify the essence of inter-relations between man and his environment, the problems proceeding from this relations and ways of solution of these problems.

Essence of man's relations to the environment proceeds from his biological and social essences in this context. Like all living organisms man is part of biosphere; all processes in biosphere take place in harmony with the basic laws of nature, which man cannot change. Man is characterised by active actions to his environment. The environment used and created by man always proceeds from nature; man uses natural resources in different ways and returns them to the environment as waste. Man's existence is dependent on nature.

In the human environment we have to observe the natural components (from biosphere) the artificial and social components from sociosphere and technosphere in their inter-relations as a totality which effects the life of every individual, as well as social groups. Quality of the environment can be assessed from various angles; complex ecological or environmental point of view must be not only multidisciplinary, but also interdisciplinary and integrated. Environment has always a full impact on man.

The level and degree of man's impact on the environment depends on the attained level of cognition and its use in practice in connection on the prevailing ethical standards. Present conflicts in man's relations with the environment depend first of all on the attained level of scientific, technical and technological development, on rapidly increasing economic activity, on rapid population growth, on discrepancies in the development of populations in different parts of the world and on superior approaches of people to nature.

Man's interaction with the environment is not static. They develop with time, differ from one part of the world to another in dependence on natural conditions and on historical development of society. The present conflicts in man's relationships with the environment have global character and have different manifestations in different regional and local conditions. The global environmental problems include:

- the exhaustibility and shortage of natural resources.
- contamination of the atmosphere.
- pollution of the hydrosphere.
- soil damage, erosion, requisition.

- endangering of the wealth and variety of living nature, disruption of ecosystems.

- chemicalization of the environment.

- physical negative phenomena in environment, mainly radioactivity, noise, vibrations.

- negative phenomena related to population concentrations and urbanization.

Environmental problems are the consequence of various human activities (agriculture, industry, transport etc.). Human activities act separately but their impact on the landscape and on its ecosystems is synergic. Environmental problems must be studied and solved in their inter-relationships, using the system approach.

The solution of environmental problems comprises the protection and the improvement of the environment. Instruments include:

- scientific and technical solution of environment problems

- economic stimulation of relations to the environment

- social, organizational and legal instruments

- education activities for responsible action of people in all spheres.

Negative effects on the solution of environmental problems have armed conflicts, preparation for war, armament, exploitation, unemployment, backwardness, excessive population growth, poverty, exploitatory attitude to nature, uneducatedness and illiteracy. On the other hand positive phenomena are the effort for the preservation of peace and for disarmament, struggle against backwardness, poverty, exploitation, development of education and culture, science and technologies (based on implementation of the ecological aspect) and international cooperation at all levels.

The establishment of harmony in man's relations with the biosphere requires a qualitatively higher measure of information in all human population. Men must use knowledge not only cleverly but also wisely. The latter requires to acquire complex ecological (or environmental) knowledge and skill to use them in all thinking and behaviour. Ecological knowledge are very important for establishing a new hierarchy of life values, the new ecological (environmental) ethic. The linkage of ecological ethic with growing recognition and its use in practice is the indispensable pre-requisites of the development of general ecological (environmental) culture without which no further development of science, technology or civilisation is possible.

Proceeding from the said statements NEE should be directed at :

- the biosphere, its substance, ecological inter-relations and laws,

  the actual substance and needs of man and the human society in relation to the environment,

- to existing environmental problems,

- to the possibilities and ways of resolving and precluding this conflicts.

In this sense the basic tasks of NEE are as follows:-

1. Every person should acquire respect, love and admiration for life, should observe and creatively use the laws of the biosphere.

2. Every man should recognize and understand his own position in the environment.

3. Every man should have a knowledge of the basic present environmental problems and their linkage with regard to space and time.

4. Every man should know the possibilities and ways of resolving environmental problems.

For this NEE must take into consideration that:-

1. NEE must respect the mutual and continuously developing relations of man to his environment, must strive to attain the short and long term goals of the environment, in their inter-relations.

2. NEE must take into consideration that people approach the environment in their capacity as citizens involved in a certain social division of labour.

3. NEE must be focused on local and regional environmental problems and must link this information with the realisation and the understanding of relationships in the whole biosphere.

4. NEE must bear in mind, that the effectiveness of its impact depends on methods used and that those methods are not successful which are founded on own activity, on direct contact with the environment.

5. NEE must reckon with the differentiated impact it will have on different age groups in population, i.e. on children, youth and adults.

6. NEE has a wide range of functions, it is aimed at a wide range of form of environmental care (at information, direct participation in the solution of environmental problems, control, etc.).

7. NEE must have complex impact on the personality of each individual; it must affect the rational, emotional and active characteristics of the personality.

The programme of NEE in activities of various institutions and organizations should include:-

- organized actions devoted to complex ecological (or environmental)

- the purposeful application of ecological aspects to all activities

- centering attention must not only be on learning but also on feelings and active environmental help, control, creative solution of environmental problems.

The greatest responsibility for the effectiveness of NEE rests first of all with him who is in charge of NEE.

APPENDIX 5 - E

Resumé of document entitled Methods, Materials, Training of Personnel, Evaluation, Legislation, Administration, Financing and Coordination Mechanisms in Nonformal Environmental Education by Professor Banku G. Ganguly, National Council of Educational Research and Training, New Delhi, INDIA.

Nonformal education has been in practice for a long time in India. It has communicated to the people, value based information for better living in harmony and peace. The environmental ethics have been most important component of this education, demanding human actions for his own benefit and for the protection of the environment.

In modern India, two types of nonformal education, namely, (1) out-of-school activities for the children of formal system, and (2) adult education for the illiterate, have been practised for the past fifty years or so. Nonformal education for non-enrolled and drop-out children is a comparatively recent phenomenon. It has been taken as an alternative to the formal system. Such nonformal education has also been extended to the stage of higher education; recently available facilities of educational technology have been extensively used.

With the recommendations of Tbilisi Conference (1977), the component of environment in school curriculum has been strengthened. Information about physical, biological, social, economic and political aspects of the environment, and their interaction, have been presented through multidisciplinary approach to students for creating awareness, knowledge, competence and skills. The nonformal system of education, which is based more on the environment, aimed at going one more step, i.e. participation in solving environmental problems. Besides the government agencies, the non-government and voluntary agencies, have done significant work towards the nonformal education.

In recent years, the concept of environment has changed. It is no longer believed that any kind of developmental programme can improve the standard of living of the people and thereby can prevent environmental degradation. On the contrary, the reverse has become true, most of the developmental programmes have brought misery to the majority and caused more damage to the environment. Instead of a short sighted approach, well thought out plans are needed for both development and environmental protection. The underlying principles of environmental education takes this into cognisance.

Environmental education* has been considered as an integral part of education in India's New National Policy on Education

---

* Environment (protection) Act (1986) has given the Government legislative powers to prevent all kinds of environmental degradation.

(1986). It had been proposed to develop a National System of Education for the total development of the human resources, in which excellence and equity will be ensured.

Some features of the programme of action for the New Education Policy (1986) are:

1. To provide lower primary (up to Class V) education to all children by 1990 and upper primary education to all by 1995.

2. To strengthen the nonformal education sector, to be equally effective as the formal education (where the basis of education is environmental).

3. To eradicate illiteracy by well-organized nonformal adult education and mass education programmes, both of which will meet the goals and objectives of environmental education.

4. To make special arrangements for the educationally backward sectors of the society.

5. To introduce environment-based vocational education.

6. To utilize the facilities of educational technology, especially in nonformal education, for developing functional literacy in all.

7. To provide encouragement to the voluntary agencies for effective participation and to work inunison with the government agencies.

8. To strengthen the training of all functionaries including teachers for implementing an environment based education. Educational technology facilities should be used in these training programmes.

9. To provide more input in terms of physical facilities and funds for the improvement of education.

10. To decentralise the educational organization so that a district based locale-specific educational infrastructure may grow up. The establishment of "District Institute of Education and Training (DIET)", "District Resource Unit (DRU)", "School net work", etc. are some of the institutions that are going to be established along this direction.

APPENDIX 5 - F

Resumé of Country Report of Egypt
By Dr. Ali Labib Ibrahim

The importance of formal and nonformal environmental education is emphasized everywhere all over the world as one of the most effective ways to meet the different complicated problems of the environment. In Egypt environmental education became a point of interest ever since the Stockholm recommendation. The last ten years were of actual progress.

Environmental Problems

Major environmental problems in Egypt are:

1. Unbalance between population growth and available resources.

2. Congestion of cities to the point that all large cities are handling more than double its natural capacity.

3. Decrease in soil fertility due to the absence of silt carried every summer by the Nile after the establishment of the high dam.

4. Unwise use of natural resources.

5. Pollution: air, water, soil, food and noise.

6. Shrinking area of cultivable land due to using it for other purposes.

7. Spread of many diseases as a result of different forms of pollution, most serious of which is Belharzia.

8. Desertification

Formal and nonformal education can no doubt play a very important role in solving such problems.

Current Formal Environmental Education

Education in Egypt is free at all levels. It is compulsory up to the age of 15. Environmental education plays an important role in the curricula of the different levels.

Objectives

1. Develop an understanding of the environment and its impact on human life.

2. Present vividly the fact that all human activities and institutions have their basis and are dependant on the different components of the environment.

3. Teach the interrelations and interdependencies between man, other animals, plants and the earth that supports them all.

4. Dispel the notion that science and technology are substitutes for natural resources and capable of solving all environmental problems.

5. Develop skills to sense environmental problems, and ability to solve them.

6. Sensitize the individual in the evidence of abuse of the environmewnt through pollution and waste of resources.

7. Develop positive values and attitudes towards the environment and appreciations of its complex interrelationships.

8. Expose problems of population growth versus production and natural resources, pollution and unwise use of resources and present its consequences on the quality of human life.

Environmental Education at General Education Level:

- In grades 1-4 Environmental Education is introduced through a curriculum of "general knowledge and environmental activities" where simple environmental facts related to science, hygiene, social studies, agriculture, home economics are fused together in a smooth way within a certain topic.

- In grades 5-9 integrated science curricula and integrated social studies curricula contribute greatly to environmental education. If we take integrated science curricula we find that they are about the environment, in the environment and for the environment.

- In secondary education the curricula of biology, chemistry, physics and geography are environmentally oriented.

Environmental Education at Tertiary Level:

- Teacher training colleges started a special course given to primary school teachers who are enlisted for the degree of B.A. in education.

- Some colleges of agriculture and engineering are introducing environmental studies within the programme.

- The picture of environmental education in tertiary level does not satisfy the fast believers in environmental education.

Environmental Education at Postgraduate Level:

Successful steps are being taken:

- The setting up of the Institute of Environmental Studies and Research in the University of Ain Shams. This institute comprises of several departments and offers a diploma, M.A., Ph.D. and certificates to denote the attendance of training courses in environmental science.

Current Nonformal Environmental Education

- Nonformal environmental Education has broad context and a diversified target audience of all age groups, found indoors and outdoors, in the urban and rural areas.

- The context is not concrete as in formal education, instead there is a variety of programmes for environmental education enrichment.

- The environmental problems constitute an important item in nonformal education in Egypt: over-population, pollution, desertification, unwise use of resources, etc.

- Environmental Education necessitates the application of a wide range of methods: radio, T.V., newspapers, journals, booklets, etc.

- A new periodical dealing with environmental problems is being published since two years.

- Training programmes are held for leaders in the different fields.

- In Egypt there is a number of legislations for preservation and protection of the environment.

Future Strategies:

Egypt planned the broad lines of a promising project for formal and nonformal environmental education, which is on its way to be executed step by step.

Problems:

1. Training of personnel

2. Finance

It is hoped, in the light of what is being done in Egypt now, that the coming years will be more successful in promoting environmental education.

APPENDIX 5 - G

Resumé of Jordan's Country Report on Nonformal Environmental Education by Mrs. Watfa A. Jabi, Ministry of Education, JORDAN

Introduction

In the Country Report I tried to describe Jordan's experience and the efforts it has made in developing environmental programmes through formal and nonformal education. On the other hand, I tried to shed light on the problems of the environment and measures taken to overcome these problems. The efforts of the public and private sectors in Jordan to establish a strategy based on environmental education.

Physical Background

The geographical importance of Jordan exceeds the limits of its area which comes to ninety thousand square kilometres. It is characterized by its strategic location that makes it close to several Arab Countries. Jordan links East with West and serves as a centre for economic and cultural activities.

Jordan is so known by large variety of its physical features. It has different types of natural environments. The desert, the badia, the oases, the mountains and the ghor valley.

There is little rainfall and its water resources are scarce.

Socio Economic and Cultural Aspects

The main features of the social environment in Jordan are the following:-

- Jordan is one of those countries which are distinguished by their rapid population growth.

- Education in Jordan is expanding rapidly due to the fact that it has become popular among people who in the meanwhile have developed awareness of its importance.

- Medical services aim at maintaining and keeping up good health standards for citizens through the control of epidemics and diseases, and provision of medical facilities.

- Jordan is considered as part of the dry and semi-dry zone, known for its irregular annual rainfall that affects surface water and water resources.

Jordan's Environmental Problems

The following are some of the environmental problems:-

- Soil erosion which causes a decrease in agricultural land

- Irregularity of annual rainfall.

  Infiltration of septic water, industrial waste and chemicals.

  Air pollution and the daily use of some materials that resist any change.

  Heavily populated cities, and housing projects.

  Illiteracy especially among those living in the rural areas and the desert.

- Health problems: germs spread out and cause diseases.

- Mass media have not played an active role in familiarizing the public with environmental issues.

Steps Taken for Solution and Prevention

1. The formation of the "Environmental Directorate" in the Ministry of Municipal and Rural Affairs.

2. The Ministry of Planning considers the environment as one of the main dimensions in the development plans.

3. Voluntary Societies help preserve the environment and control its pollution.

4. The royal Scientific Society makes studies and practical suggestions to environmental subjects.

5. Jordanian Universities exert efforts to raise environmental awareness through voluntary committees and clubs.

Current Formal Environmental Programmes

The formal environmental education programmes are sponsored by the following agencies: The Ministry of Education, Jordan Universities and Junior Colleges, which offer courses about environment in particular and training to raise environmental issues and awareness.

Current Nonformal Environmental Programmes

Programmes on nonformal environmental education are organized by the following organizations: The Ministry of Education, Universities and other educational institutions and social work associations.

The Ministry of Education implements the national programme for eradicating illiteracy. It concentrates on self-learning and problem solving methods.

- The junior colleges run courses of environmental education and community service. Yarmouk University, for example is known for its interest in local communities and raising the students awareness of environmental issues.

Voluntary societies produce pamphlets, brochures and organize seminars and trips for local community.

Other Ministries play an important role in sensitizing the public to environmental issues.

Priorities

The educational, scientific, academic and community organizations have the following priorities in their respective activities in the area of environmental education.

1. To survey environmental issues in Jordan, including problems, resources, procedures, as a goal to preserve and protect environment.

2. To give emphasis to environmental issues, natural and man-made, in the continuing education programmes of universities, community colleges, schools and centres.

3. To single out environmental education as an area of interest to the students to build their positive attitudes towards the environment.

4. To issue different brochures, leaflets and publications dealing with environment and sponsoring permanent and temporary environmental exhibitions.

5. To produce short TV programmes, conducting research studies, with governmental and voluntary aid, and circulating their conclusions.

6. Organizing seminars and symposia for groups interested in environmental issues.

7. Increasing the number of natural museums to be as resource and research centres in the area of environmental protection.

8. Conducting in-service training programmes for the teachers of environmental education.

9. Providing a legislative umbrella for environmental protection by issuing and enforcing environmental laws, by-laws and regulations.

In spite of all these concerted painstaking efforts, Jordan still has a long way to go in the area of environmental education if environment is to be preserved and environmental catastrophies to be expected and avoided.

APPENDIX 5 - H

Resumé of Nigeria's Country Report on Nonformal Environmental Education, by Eng. Mustapha Shekoni, Federal Ministry of Works, Housing and Environment, NIGERIA

A. Major Environmental Problems of Nigeria

The environmental problems of Nigeria were categorised under 2 main headings namely Primary and Secondary problems.

1. Primary Environmental Problems:-

These are problems which are due to human activities or non-activities, they include the following.

(i) Lack of safe and adequate water supply in some towns and in most of the rural areas.

(ii) Lack of efficient sewerage and drainage in some of the cities and in most of the rural areas of the country.

(iii) Improper collection and disposal of refuse and other solid wastes including industrial wastes.

(iv) Rapid population growth and mass immigration from the rural areas to the cities.

(v) Lack of adequate housing and associated infrastructure to match with (iv) above.

2. Secondary Environmental Problems:

These are problems which are not man-made but they are created by natural phenomenon. They are:-

(i) Various Industrial pollution arising from improper management/disposal of Industrial wastes be it liquid, solid or gaseous efferents.

(ii) Deserts - encroachment from the Northern parts of the country.

(iii) Land and sea erosion from the south.

(iv) Deforestation due to tree felling for both domestic and commercial use.

B. The courses of these problems were identified to be due to:

(i) Lack of EIA on developmental projects e.g. housing estates without drainage.

(ii) Rapid and uncontrolled growth of population.

(iii) Poverty and ignorance.

(iv) Exploitation by the industrialists.

(v) Natural phenomenon.

C. Measures taken for the solution and prevention of environmental Problems.

(i) Establishment of environmental Planning and Protection Division in the Ministry of Works, Housing and Environment.

(ii) Establishment of National Environmental Policy.

(iii) Establishment of EIA committees on developmental projects.

(iv) Tree planting campaign which involves participation by the Government (The President State Governors and the Citizen).

(v) Introduction of formal and nonformal environmental education at all levels of the society.

(vi) Encouragement of voluntary social organizations which are interested in environment.

(vii) Increase of the citizen awareness and consciousness towards a clean environment.

(viii) Observation of last Saturdays of the months as Environmental sanitation days.

(ix) Changing the behavioural pattern of the people towards a clean environment.

D. Current formal and Nonformal education Programmes

1. Formal Environmental Education Programme. This is carried out at all levels of educational ladder.

(i) At Nursery and High School:- The school curricular includes "Things around us, nature study and general hygiene, social and political environment. Messages are passed to the general educated persons via, newspapers, TV, radios, debates and discussions".

(ii) At higher institutions of learning, degree courses are offered in traditional natural sciences such as biology, health sciences, social science, geography, political science, agricultural biology, agronomy or crop science, wild life, forestry and soil science. Also, some universities now offer courses on Environmental Engineering or design.

2. Current Nonformal Environmental Education

These include the following:-

(i) Dissemination of environmental information through jingles, posters, handouts and panel discussion.

(ii) TV and radio programmes on environment.

(iii) Discussion with traditional ruler, local chiefs and community leaders.

(iv) Discussion with pressure groups such as Religious leaders, market women, boy scouts, girl guides, voluntary organizations.

(v) Encouragement of various environmental societies.

(vi) Competitions between states, organizations and similar bodies.

(vii) Film shows on various aspects of the environment at various locations especially in the rural areas.

(viii) Guided tours to show various natural environmental problems.

F. Evaluation Technics:-

The effectiveness of the preventive and control measures are being evaluated via:

(i) Questionnaires to be filled by a cross-section of the populace.

(ii) Observation of the state of the environmental behavioural pattern of the populace.

(iii) Questionnaire to be completed by industrialists from time to time.

(iv) Occurrence or non-occurrence of illnesses which are directly environmentally related.

(v) Regular inspection of factories and conditions to which employees are being subjected to.

(vi) Regular unscheduled inspection of homes, cities, villages and public places.

(vii) Regular inspection of vehicle especially those which are used for public transport and other commercial purposes.

(viii) Regular sampling and analysing the state of our surface and ground waters.

F. Administration and Finance:-

The general administration of the protective, preventive and monitoring measures of the environment is the responsibility of the Federal Government through the Environmental Planning and Protection Division of the Federal Ministry of Works, Housing and Environment. However other bodies interested in the betterment of the environment are very much encouraged. Finance is usually the responsibility of the Federal Government.

G. Priorities of the Federal Government towards the improving and maintenance of the environment are as follows:-

(i) To increase the general awareness and consciousness of her citizen in the field of environment.

(ii) To increase the populace knowledge and participation in the protection of the environment.

(iii) Provision of basic facilities and ammenities for the up-grading of the citizen standard of lives.

(iv) To increase the level of Nonformal Environmental Education which is a very vital means of reaching both literate and illiterate persons.